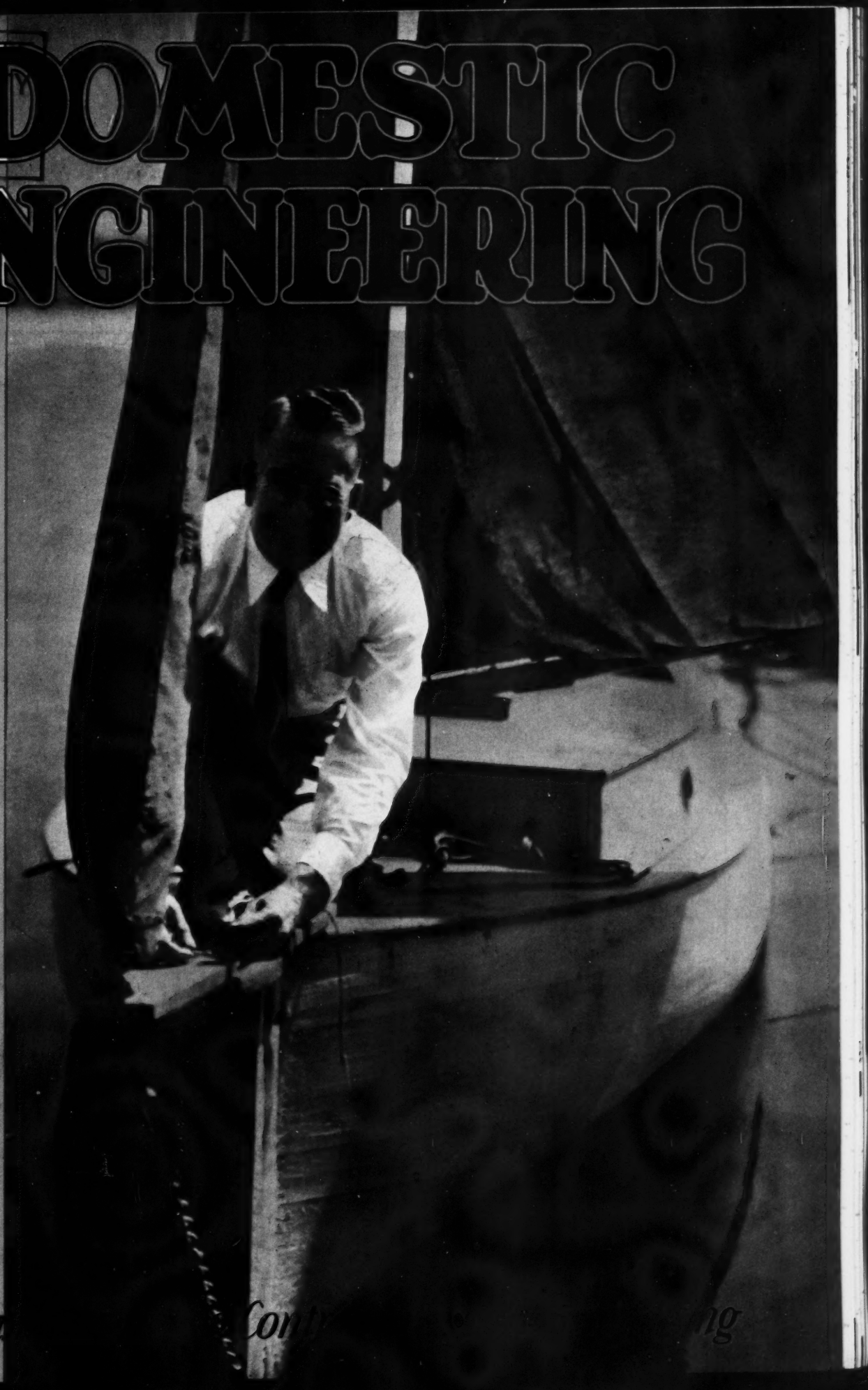
...IO S...
...NIVERS...Y
OCT 7 - 19...
LIBRA...

DOMESTIC ENGINEERING



...eation has a
...te part in the
...vities of our
...ers — many
... business men
...ee Page 64

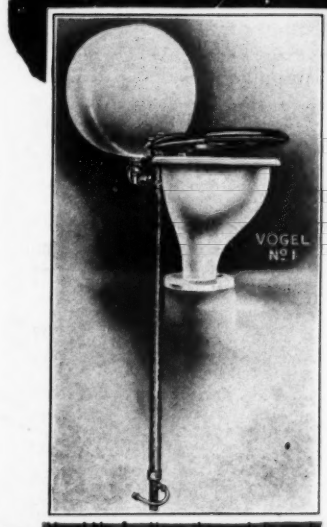
...CTOBER
...9 3 7

Plumbi... ...Co... ...ng

THRUSH
WATER
CIRCULATORS
FEATURES
EASY TO INSTALL — with simple flange mounting.
YEAR 'ROUND DOMESTIC HOT WATER hook-up with only one Flow Control valve.
PACKLESS SEAL that will not leak. Developed first by Thrush.
QUIET RUNNING—silent when first installed and continues to run quietly.
LONGER LIFE—due to sound engineering and careful manufacture.
THRUSH
The STANDARD OF QUALITY IN AN INDUSTRY!
ANY HEATING man will tell you the name "Thrush" has meant the newest ideas and finest quality in warm water heating equipment for many years. The Thrush Circulator, for instance, leads the field. There are more Thrush Circulators in operation today and more new ones installed every year than any other make. Your best guarantee is the enthusiastic endorsement of thousands and thousands of Thrush users. That's why every Thrush installation you make sells another job for you.
THRUSH FLOW CONTROL SYSTEM HAS REVOLUTIONIZED WARM WATER HEATING AND SET NEW STANDARDS OF HOME COMFORT AND PERFORMANCE!
MAIL THIS NOW!
H. A. THRUSH & COMPANY • Box 459 • PERU, INDIANA
Please tell us more about Thrush Water Circulators and give us complete information on Thrush Flow Control System.
NAME
ADDRESS
CITY
STATE

Cold weather is on the way—

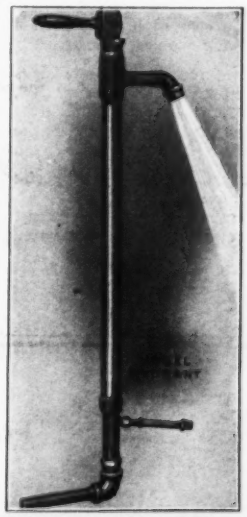
BUT IT'S NEVER TOO COLD FOR VOGEL FROST-PROOF CLOSETS AND HYDRANTS



YEAR after year VOGEL Frost-Proof Closets and Hydrants prove their economy and dependability under all conditions. Even in weather far below zero they continue to operate satisfactorily, and seldom require repairs or adjustments. Your customers need the protection and dependability of VOGEL Frost-Proof Closets and Hydrants.

Now is the time to install them!

JOSEPH A. VOGEL COMPANY
Wilmington, Delaware • St. Louis, Missouri



VOGEL PATENTED *Frost-Proof* **Products**

DOMESTIC ENGINEERING

Plumbing & Heating Contracting and Merchandising

October, 1937

Vol. 150, No. 4

Whole
No. 2034

Established 1889

Published Monthly by

Domestic Engineering Co.
1900 Prairie Avenue
Chicago

TERMS OF SUBSCRIPTION

Anywhere in the World, $2.00 per year.

Current copies, 25c each
Back copies, 50c each

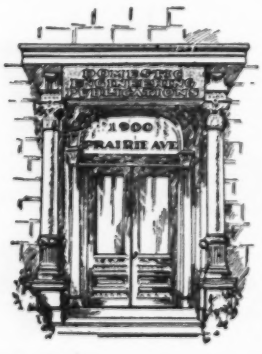
Entered as Second Class Matter on September 26, 1932, at the Post Office at Chicago, Illinois, under the Act of March 3, 1879.

Copyright 1937, by Domestic Engineering Co.

Member of Audit Bureau of Circulations and Associated Business Papers.

Contents

Editor's Page 64
Our Industry 67
"Plumbing and Heating Prices Are Lowest"—Campaign 68
Air Conditioning—With Well Water and Refrigeration 72
Sailing 77
Don'ts—Tie in with Fire Prevention 78
Water System—Applications 80
Highlights of the Latest News from Washington 82
Cleveland Is Next 85
Standards—Chicago Standards for Comfort A. C. 87
"Dope"—For Practical Men 89
Gentlemen—Your Window 91
Heatin's Got Wings 94
Connections—Right and Wrong 96
Heating Reference Data 99
Business on Parade 104
News of the Supply Field 114
News of the Trade 124
Obituaries 132
New Contractors 132
Convention Dates 132
Women 135
Recognition 136
Questions and Answers 132
New Products 144
New Trade Literature 150
New Ideas in Patents 156
Classified Advertising 178
Index to Advertisers 180



O. T. CARSON, Publisher and Editor D. J. HANSEN, General Manager
R. V. SAWHILL, Executive Vice President, at New York
WM. W. GOTHARD, Editorial Director

Editorial Staff: R. HERLOV, News Editor; C. L. STAPLES, Associate Editor; THOS. E. HANSON, Associate Editor; H. L. ALT, Consulting Editor on Heating and Air Conditioning; J. U. FARLEY, Marketing and Research Editor; E. P. CAMPBELL, Advertisers' Service Department.

Advertising Representatives: E. G. Hutchison, Douglas M. Kenney, H. J. Carr, A. T. Papineau, H. M. Thompson, Fred A. Clark.

Field Representatives: T. H. Craige, G. F. Hagendorn, Robt. Startup, M. G. Ulfers.

Branch Offices: New York, 110 East 42nd Street; Cleveland, Citizens Bldg.

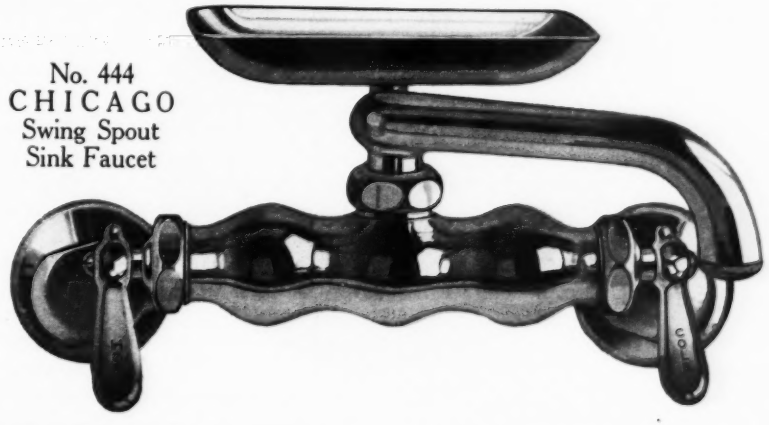
CHICAGO FAUCET NEWS

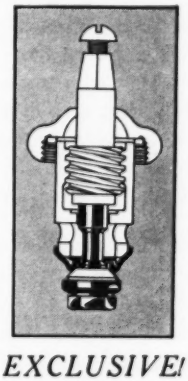
Issued Monthly by The Chicago Faucet Co., 2700-22 N. Crawford Ave., Chicago, Ill. Vol. 5, No. 12

All parts of Chicago Faucets subject to wear are incorporated in a standardized, removable, interchangeable operating unit and are as easily renewable as an electric light bulb.

Quicker sales, better profits, and a satisfied customer every time

No. 444
CHICAGO
Swing Spout
Sink Faucet





EXCLUSIVE!

In the operating unit of the No. 444, as in all other Chicago Faucets, the seat, lower stem, washer retainer, and end nut—all the parts that move in water—are Monel Metal. This means highest resistance to abrasion and corrosion. It's an exclusive feature with Chicago Faucets.

That's what the No. 444 Chicago Sink Faucet means to YOU

The service record of the "444" is magnificent. Users everywhere proclaim it "tops". When you sell a "444" you make a friend. As a feature sales item, the "444" has "what it takes". It *looks* like a superior faucet, and it *acts* like one. Its operating advantages are easy and convincing to demonstrate. Its performance verifies every claim made for it. And because it sells readily at a substantial price, you make a fine profit on it. Plow your selling ground with this reliable, fast turn-over leader and there'll be no harrowing aftermath. Instead, there'll be a fine harvest of follow-up sales. John Q. Householder knows what he likes, and remembers where he got it.

MAIN LIBRARY C

ONE MOTOR FOR TWO JOBS

THIS MOTOR IS A SALESMAN that helps you convince prospects that the domestic electric water systems you sell are the best for the money and are of high quality throughout.

General Electric's high standards of quality are well known, and when prospects are told that the water systems you sell are equipped with G-E motors, they take the high quality of the electric equipment for granted. This reputation, added to that of the water-system manufacturer, leaves no doubt in the minds of prospects about the dependability of the complete unit. Thus, more time can be devoted to talking about the advantages and economies of running water, and to contacting prospects instead of waiting for them to come to you.

Impartial surveys indicate that the general public prefers G-E motors — prefers them because they have a reputation for giving many years of care-free service.

THIS MOTOR IS A WORKMAN that is reliable, that is quiet-operating, and that requires little or no attention — one that makes satisfied customers, leads to additional purchases, and brings in new customers.

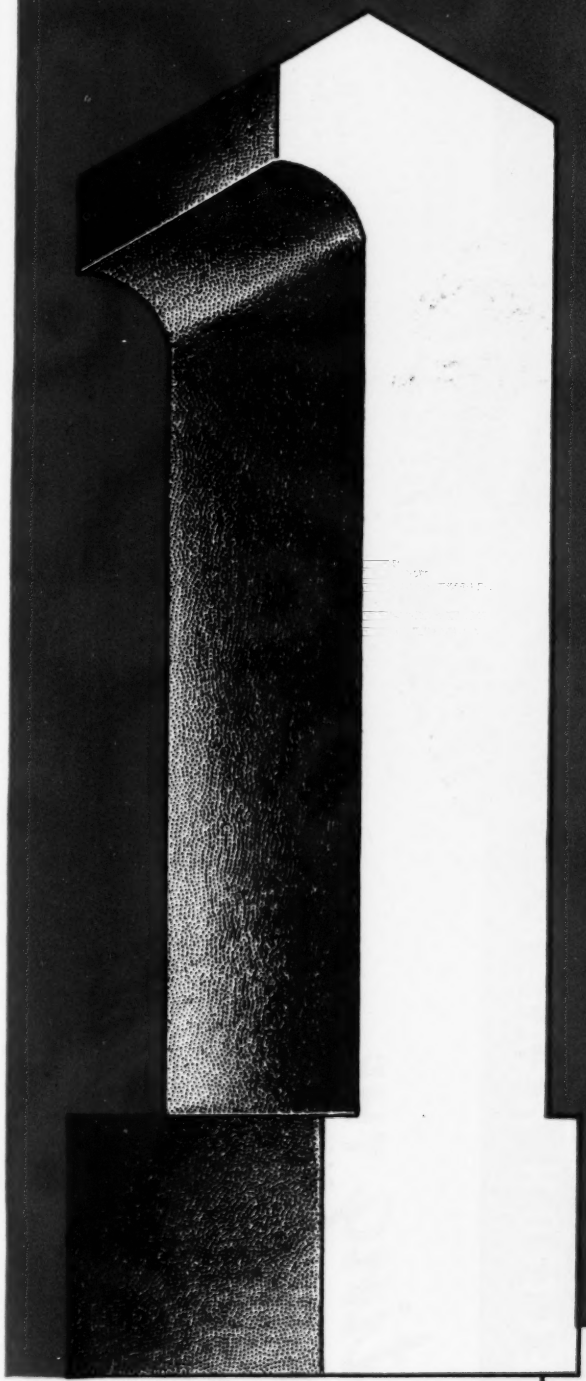
This G-E capacitor-motor is designed specifically to meet the torque requirements and grueling duty cycle of the modern domestic water system — built by men who know motors, for men who know pumps. Cast-aluminum rotor winding that cannot burn out or become open-circuited, stator windings that are resistant to moisture, oil, and mild acids and alkalis. Inherently well balanced. Does not interfere with radio reception.

Industry after industry has adopted the G-E capacitor-motor, and today millions are giving lasting satisfaction on refrigerators, stokers, and pumps — are helping to build confidence in domestic electric appliances. General Electric Company, Schenectady, N. Y.

G-E MOTORS PASS ALL TESTS

070-208

GENERAL ELECTRIC



Now...a New Revolutionary Step in Hot Water Heating

THE "TACO-ONE" *Venturi* SYSTEM

TACO announces to the building and heating trades a new and remarkable system of hot water heating . . . the "TACO-ONE" VENTURI SYSTEM.

No more complicated engineering calculations. The "Taco-One" Venturi System offers the heating contractor, architect and homeowner a super-efficient hot water system for heating the home. This system is simplicity itself to install, and economy itself to operate.

The quality and reliability that has always stood behind Taco products backs the guaranteed "Taco-One" Venturi System.

Leading heating contractors should acquaint themselves immediately with this all-important heating development. Write and let us give you full details.

TACO HEATERS, Inc.
342 Madison Avenue, New York City
(In Canada: 24 Adelaide St. West, Toronto)

Please rush to me by return mail, full information about the new TACO-ONE *VENTURI* SYSTEM.

Name.....

Type of Business.....

Address.....

Another Triumph by

TRANE

THE NEW Round PROJECTION HEATER

Ceiling Mounted

Heating THE WORKING ZONE WITH THE EASE AND SPEED OF Light!

ANNOUNCEMENT of the Trane Projection Heater is distinctly heating news, for this startling development does what no other unit heater has been able to do. Heretofore it has been impractical to mount a unit heater at the ceiling, regardless of height, to take efficient advantage of the great mass of hot ceiling air which normally floats in the high upper area of any heated space.

Mounted flat at the ceiling—an exclusive Trane development—the Trane Projection Heater completely blankets the working or living area with an even, comfort temperature, and just sufficient air motion to prevent either the "blasting" of the old type of unit heater or the dead air sensation resulting from the conventional radiator type heating system.

EIGHT POINTS OF SUPERIORITY

QUICK HEAT! Quick heat in the working zone. The Trane Projection Heater in tests has been able to heat a given space more quickly than any conventional heating system.

NEW WORKING ZONE COMFORT! Heat distribution where it is needed in the working zone, due to the round coil construction, the Trane designed fan, and the high ceiling mounting.

MAINTAINED EVEN TEMPERATURE! Even temperature constantly maintained by the quiet downward distribution of heat and its recirculation to the working zone as fast as it rises.

INCREASED HEAT SPREAD! Greatly increased coverage of areas to be heated—a definite result of the construction and mounting of the heater.

NEW QUIETNESS! The Trane Four-Blade Propeller Fan is especially designed to insure quietness as well as uniform efficiency, while the motor mounted in three-point resilient suspension, is practically noiseless, and saving in power.

NEW ECONOMY! It is obvious that the revolutionary construction and the method of heat distribution of the Trane Projection Heater will assure real economy.

OPERATES ON HIGH OR LOW STEAM PRESSURE, with no expansion problem.

TROUBLE-FREE SERVICE! The simple but sturdy construction of the Trane Projection Heater assures constant, dependable service over a long period of years.

THE Trane Projection Heater literally projects and diffuses heat from the ceiling to the floor and, when the heat rises again, recirculates it to the living or working area. It thus overcomes the chief drawback to proper heat circulation, that condition referred to by engineers as "ceiling stratification" or "cold 70 in the living zone."

A SIMPLE COMPACT UNIT

The Trane Projection Heater is a simple, compact unit, round in design, built of circular Trane Coils which surround a specially designed Trane 4-blade propeller fan. The coils are open throughout their entire circumference, being held in place by two plates. The upper or ceiling plate carries the motor, while the lower, or "orifice" plate, permits the free projection of heat by the propeller fan. Due to the circular coil construction, all expansion problems vanish. The same unit may be used for high or low pressures.

CEILING MOUNTING ADVANTAGES

The flat ceiling mounting of the fan—made possible by this design and the new direct flow principle—is an outstanding feature of the Trane Projection Heater. Due to the design efficiency of the unit, it can be mounted at a distance as high as 30 feet or more from the floor, which makes it possible to take advantage of all hot ceiling air. The significance of this feature cannot be overemphasized. The unit is also out of the way, providing for the greatest use of the heated space. This high ceiling mounting is an advantage absolutely impossible in other types of unit heaters.

The combination of greater heat spread and complete removal and recirculation of heat normally found at the ceiling to the lower strata, where it is needed, plus the ceiling mounting, make the Trane Projection Heater a remarkable contribution to the problem of heating any area in structures where space heating is applicable.

THE HEAT EQUALIZING SYSTEM

The Trane Projection Heater has made possible the creation of another exclusive Trane development—the Trane Heat Equalizing System. This consists of a series of Trane Projection heaters mounted at the ceiling and so regulated by thermostats that all or one can be operated at a time, or the fans can be operated for recirculation only.

The Trane Heat Equalizing System completely overcomes air stratification—wasted heat at the ceiling—maintaining a gentle, warm circulation of air at the working level.

FULL DETAILS IN BULLETIN

Installation of one Trane Projection Heater will give an entirely new experience in heating comfort. Mail the Trane-O-Gram for complete information about this remarkable heater.

SEND **TRANE-O-GRAM** TODAY

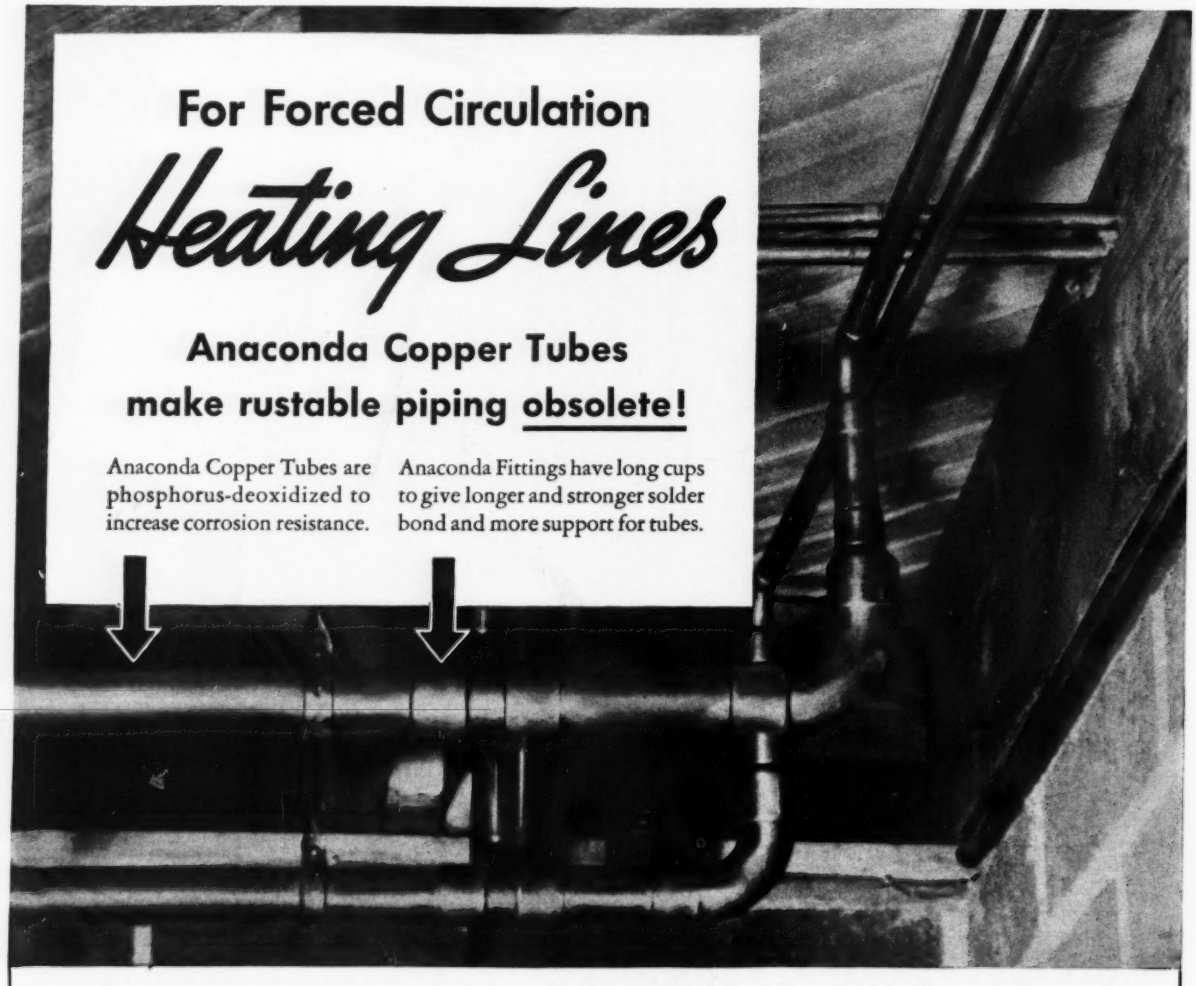
The Trane Co.
2006 Cameron Ave., La Crosse, Wis.
We wish your Bulletin No. 284 with complete information on the Projection Heater.

Firm _____

Address _____

THE TRANE COMPANY

HEATING COOLING VENTILATING



For Forced Circulation

Heating Lines

Anaconda Copper Tubes make rustable piping obsolete!

Anaconda Copper Tubes are phosphorus-deoxidized to increase corrosion resistance.

Anaconda Fittings have long cups to give longer and stronger solder bond and more support for tubes.

HERE'S the best value and the most attractive appearance in piping for hot water heating installations with forced circulation.

Reduced resistance to flow. The permanently smooth interiors of copper tubes and fittings reduce friction . . . give 10% to 15% greater velocity of circulation with the same head.

Smaller-size tubes. The faster flow through copper makes it possible to use smaller-size tubes and fittings.

Heat losses are less. Usually, the heat given off by uninsulated copper lines is no more than desirable for heating the basement.

Cost little more. An installation of Anaconda Copper Tubes and Fittings costs very little if any more than piping that rusts.

Anaconda Copper Tubes and Anaconda Solder-type Fittings in sizes from ⅛" to 8" are available at leading supply houses. There is an Anaconda copper-tube fitting for *every* heating requirement.

8742

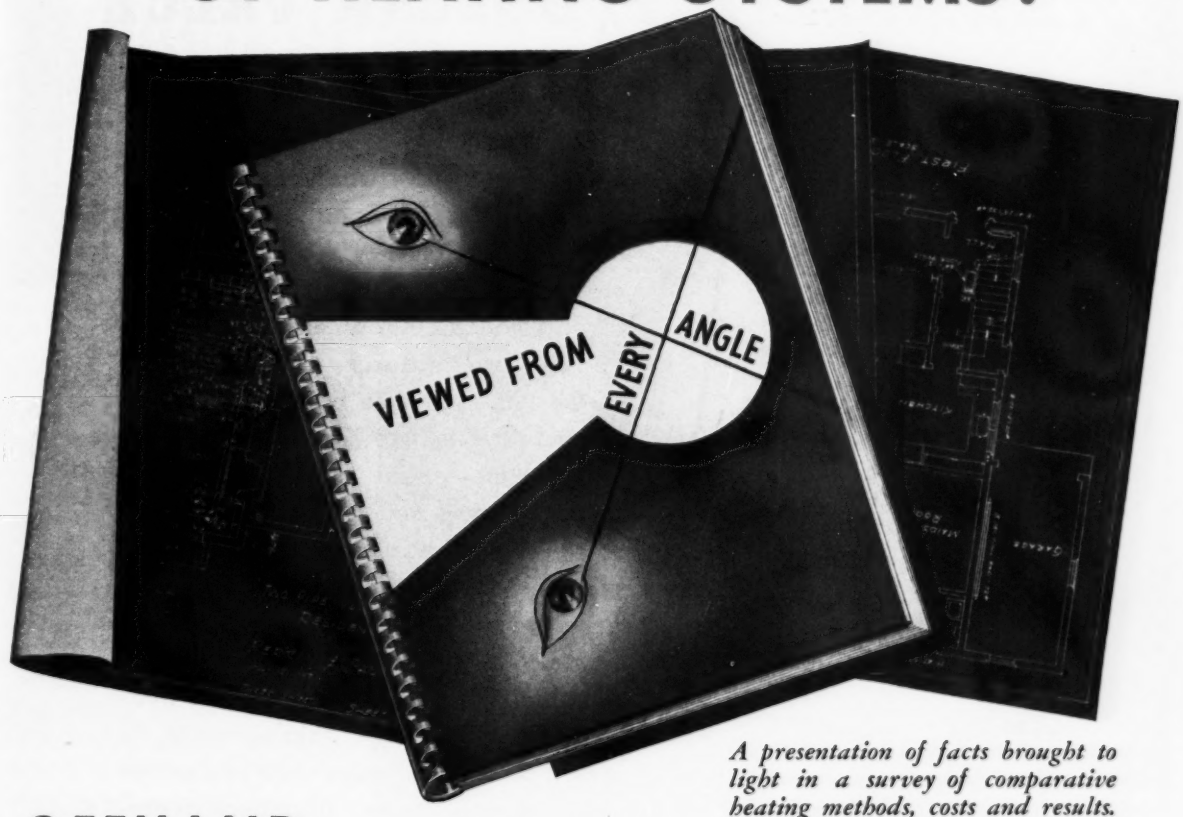
ANACONDA

Anaconda DEOXIDIZED *Copper Tubes*

THE AMERICAN BRASS COMPANY · GENERAL OFFICES: WATERBURY, CONNECTICUT

Offices and Agencies in Principal Cities · In Canada: ANACONDA AMERICAN BRASS LTD., New Toronto, Ontario

A BOOK WHICH WILL REVOLUTIONIZE YOUR IDEAS OF HEATING SYSTEMS!



A presentation of facts brought to light in a survey of comparative heating methods, costs and results.

OFFHAND...

CAN YOU ANSWER THESE QUESTIONS?

1. What simple equipment puts luxury heating in the low-cost bracket?
2. Under what conditions is residential air-conditioning most successful?
3. Between various heating systems, how do costs compare after 3 years —after 12 years?
4. How can "Arctic Zones" be avoided?
5. What method will furnish domestic hot water at least cost?

You'll find the answers in Hoffman's "Viewed from Every Angle"

In the welter of conflicting claims for various heating methods, it is not surprising that a degree of confusion should exist.

Vague generalities *{sometimes glittering}* have supplanted concrete facts. Even the question of ultimate cost, for example, has never been settled with definite, provable figures. Until today—

Today you have available the results of a searching survey of heating system cost and desirability, sponsored and published in booklet form by the Hoffman Specialty Company. It presents a mass of evidence which may entirely revise your ideas of residential heating.

As a member of a profession whose judgment is completely relied upon by its clients, you should read this booklet "Viewed from Every Angle" for a true picture of modern heating. A copy will be sent to you upon request. Use the coupon.

HOFFMAN
SPECIALTY CO. INC.
WATERBURY, CONN.

The Quality Line of HSCo Heating Specialties

Hoffman Specialty Co., Inc.
Dept. RX-10, Waterbury, Conn.
Send me a copy of "Viewed from Every Angle."

Name .....
Address .....
City ..... State .....

Sold everywhere by leading wholesalers of Heating and Plumbing equipment

Plumbing Fixture

THE GREATEST DOLLAR VALUE IN THE INDUSTRY!

BRIGGS BEAUTYWARE FEATURES

1. Modern design—beauty, safety and utility.
2. Lighter weight—easier to install.
3. Exclusive, two-tone pastel color combinations.
4. Better porcelain-enamel finish.
5. Longer life.
6. Higher luster—easier to keep clean.
7. Acid-resisting at no extra cost.
8. Rustproof.
9. Prices competitive with cast iron.

• Briggs Beautyware Safety Tub has such exclusive features as the flat, safety-tread (patented) bottom—the lip flange for better tiling-in—the safety seat and two-tone color combinations. It has set the style for all tub manufacturers.

• Like the Safety Tub, the Briggs lavatory designs are now being copied by other manufacturers. The model D-712, shelfback lavatory introduced in 1935, is one of many Briggs lavatory units.

The buyer always wants *more* for his money. In Briggs Beautyware he gets it! One look usually makes this fact clear. Close, comparative inspection reveals not one, but nine special Briggs Beautyware features. Check the list at the left. The time has passed when the public will take "something just as good"—they want something *better.* Briggs' design and beauty help clinch sales—make satisfied customers. The public, however, pays no premium for Briggs Beautyware which has established an entirely new yardstick for plumbing fixture dollar value. No wonder the new Briggs catalog—with its new models and Briggs' new low prices—is helping master plumbers everywhere to make new or replacement sales at new and higher profits. See the Briggs authorized wholesaler in your territory, or write Briggs, Detroit, for further information.

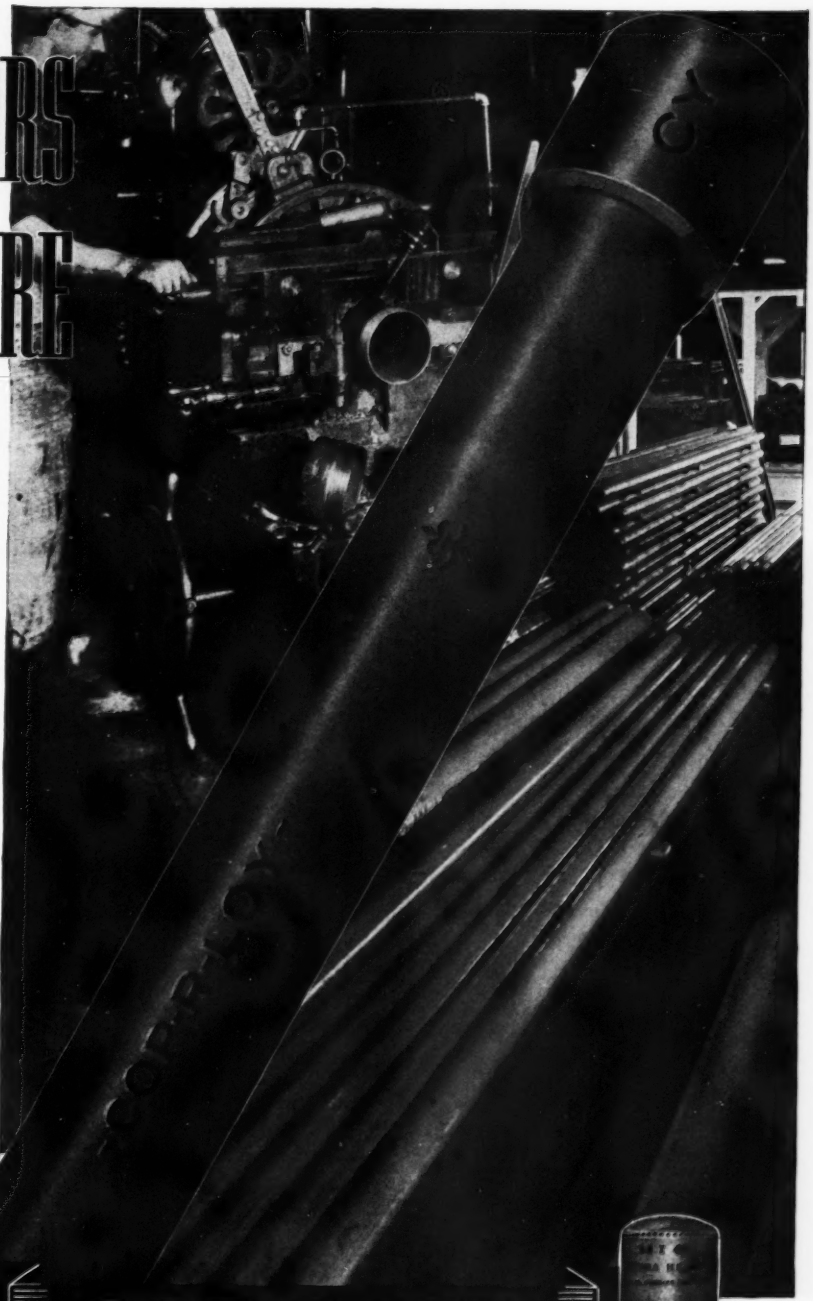
BRIGGS MANUFACTURING COMPANY
PLUMBING WARE DIVISION
DETROIT, MICHIGAN

BRIGGS *Beautyware*
PLUMBING FIXTURES

DISTRIBUTORS EVERYWHERE

at your service

When COP-R-LOY pioneered the first pipe made of copper alloyed steel it set up a new standard in quality and durability. It did more than that—it established a new economy in service costs for both the plumber and the owner. That was nine years ago . . . and, today, the wide acceptance of COP-R-LOY is reflected in the fact that leading distributors carry full stocks of tubular goods made of COP-R-LOY (black and galvanized) in all standard sizes. For whatever project you have in hand, specify genuine Wheeling COP-R-LOY by name—It's Wheeling Steel. Wheeling Steel Corporation, Wheeling, West Va.

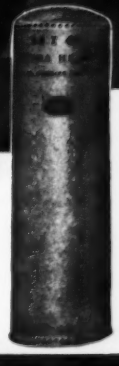


WHEELING STEEL

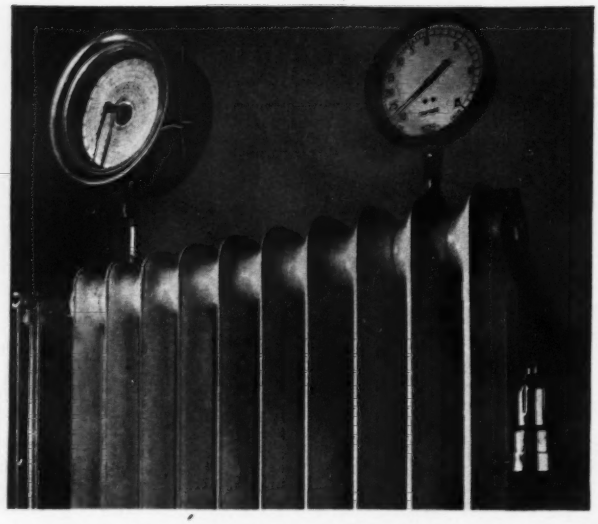
COP-R-LOY

Reg. U. S. Pat. Off.

All sizes and types of Whitaker Range Boilers and Special Tanks are obtainable through your regular source of supply. Made of COP-R-LOY and sold only through recognized jobbers of plumbing and heating supplies.



IT'S WHEELING STEEL



For 37 HOURS it held this vacuum

In the laboratory test illustrated here, a New No. 2 Marsh Air and Vacuum Valve was installed on a hermetically sealed radiator from which the air had been as nearly exhausted as is humanly possible. The Marsh Vacuum gauge showed a vacuum of 28.5 inches—and the No. 2 Air Valve held this vacuum within ½ inch for thirty seven hours straight.

The test was discontinued at the end of thirty seven hours, but there was every evidence that it could have been prolonged with very slight loss of vacuum. Of course such a vacuum is not possible or desirable in a heating system, but it is

—a remarkable demonstration of the TRIPLE VACUUM SEAL

THIS exclusive Marsh feature is illustrated opposite. When the slightest vacuum is formed, a highly sensitive vacuum check (first seal) is drawn against its seat. As vacuum deepens, the valve pin of the upper float closes the orifice to form a second seal. This is accomplished by simply sealing air at atmospheric pressure in the upper float. The bottom of this float is a diaphragm, and when external pressure is relieved from the float, the diaphragm bottom is forced out by the air sealed inside. This elongates the float and forces the valve pin into the upper orifice. Naturally the seal increases as the vacuum deepens. If the interval between firing periods is prolonged, forming a still greater vacuum, a third seal is formed by a lower vacuum diaphragm which raises the lower valve pin against the lower orifice.

The New No. 2 is as effective in venting air as it is in sealing vacuum. The double float construction, another exclusive feature, permits a larger air passage through the valve by providing a quick, sure seal the moment water enters. Despite this faster venting rate, the Marsh New No. 2 is the quietest air valve you can install.

Ask for latest bulletins and discount sheets.

JAS. P. MARSH CORPORATION
2051 Southport Avenue, Chicago, Ill.

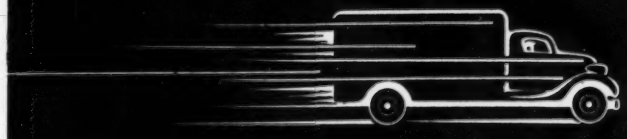
NEW No. 2 AIR AND VACUUM VALVE

A Greater Experience— a broader line

The Marsh New No. 2 is merely the standard bearer for the most complete line of radiator air valves, radiator inlet valves, traps, gauges, thermometers, recorders, and similar heating specialties that is offered to the heating contractor. A greater experience — a broader line — a higher standard throughout—that's Marsh.

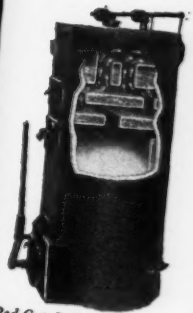
MARSH MAKES ALL RADIATORS FAST **AIR and VACUUM VALVES**
Your Jobber Stocks Them

ORDERED YESTERDAY

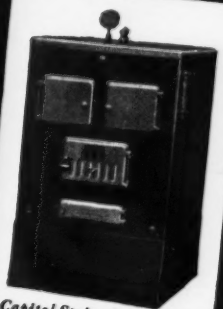


. . . DELIVERED TODAY

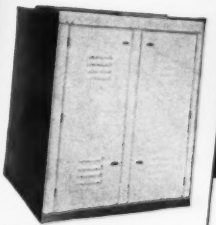
THAT'S TYPICAL U. S. SERVICE



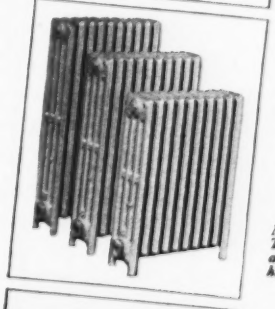
Red Cap Boiler for coal. Also available for oil firing.



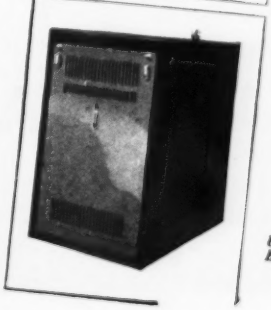
Capitol Stoker Boiler with extra high steel base.



Direct Fired Capitolaire Conditioning Unit.



New, slender ThinTube Radiators in three heights.



U.S-25 Oil Burning Boiler with wet base.

FAST delivery is only one of the important reasons why more and more heating contractors depend on U. S. In addition U. S. brings you all the advantages of a complete line . . . under one name . . . from one source. Whether it's boilers, radiators or convectors U. S. products are designed right and built right. They incorporate every worthwhile feature to give better performance and lessen heating costs. Factors that mean more to your customers than mere price. Cash in now on the business building opportunity of home modernization with U. S. Air Conditioning, or the extra profits to be made from U. S. Unit Heaters. Ask any U. S. Branch Office for detailed information, or, if you prefer, write direct.

27 WAREHOUSES

Located in key marketing centers from coast to coast these U. S. Warehouses assure quick deliveries . . . permit you to meet the demands of today's buyers.

UNITED STATES RADIATOR CORPORATION

GENERAL OFFICE, DETROIT—BRANCHES AND SALES OFFICES IN PRINCIPAL CITIES
8 MANUFACTURING PLANTS—27 WAREHOUSES ASSURE QUICK DELIVERIES

Installing
GOOD PIPE
. . . is still the best practice!

Progressive Plumbing and Heating Contractors who are "going ahead" take no chances with the pipe they use. They are not much enthused over wasting time on any pipe that may cause trouble during installation or afterwards interfere with a policy of building "good business".

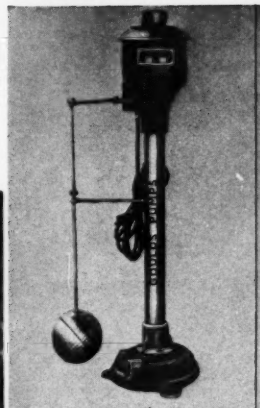
They still depend on NATIONAL, America's Standard Wrought Pipe, as a good pipe to work with and a good product on which to build an enviable reputation. They know they can rely on NATIONAL'S uniform metallic structure; its unusual strength and ductility; its smooth, strong, easily made threads; and best of all, the long, satisfactory service it gives. Why not benefit by the experience of these Contractors. Try out NATIONAL on your next job and find out for yourself how easy it is to work with, and the time it saves.

All Butt-weld sizes, ½ to 3-inches, are made scale-free, and all sizes 4-inches and under are Spellerized. NATIONAL PIPE comes in Copper-Steel to resist atmospheric corrosion; also in Duroline, a highly improved cement lining, to resist corrosive waters. Tests and inspections, the most painstaking and the most thorough, are applied to every length of pipe that leaves the mill. Distributors everywhere are at your service.

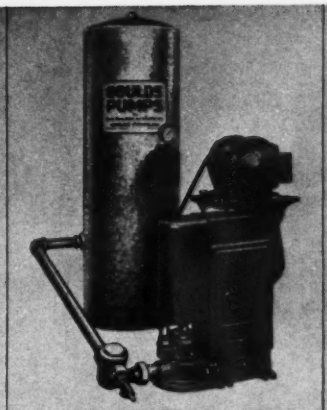
NATIONAL TUBE COMPANY
PITTSBURGH, PA.
Columbia Steel Company, San Francisco, *Pacific Coast Distributors* · United States Steel Products Company, New York, *Export Distributors*

UNITED STATES STEEL

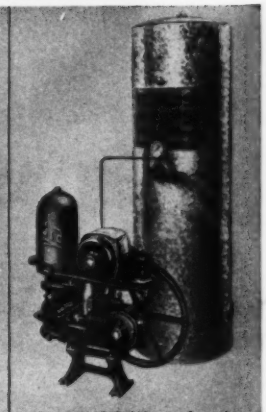
"YOU CAN BUILD YOURSELF A PAYING PUMP BUSINESS IF YOU TIE IN WITH . . ."



Goulds CID Cellar Drainer



Goulds CID Water Supply System for deep wells



Goulds CID Water Supply System for shallow wells

You know from experience that clean up days are modernization days—profitable days. Rains bring flooded cellars that endanger health and property. Goulds CID Cellar Drainers are easy to sell.

For customers who will modernize their buildings with running water, sell Goulds CID pumps for shallow and deep well systems.

Your customers will need quantities of pipe, fixtures and appliances for bathroom, kitchen and laundry—drinking fountains for live stock —sprinkler systems for irrigation.

When you carry Goulds CID Pumps, you have a line of fast moving merchandise that has more exclusive features than the ordinary, more merchandising support that builds profits for you, and the backing of a policy—strictly adhered to at all times—that favors and protects the legitimate dealer and distributor.

Cash in on Goulds CID Water Systems and Cellar Drainers. Order your stocks today. If your regular jobber does not handle the Goulds line, write for name of nearest Goulds distributor.

GOULDS PUMPS, INC., 200 Fall St., Seneca Falls, N. Y.

GOULDS

Here's Why!

Gould's "CID" Water Systems and Cellar Drainers are:

1. Nationally known and accepted as quality products. Once sold they stay sold. No profit-eating service calls.
2. Part of a complete line of pumping units for all services. Every requirement of your customers can be filled with just the right pump for his job.
3. Priced right for the market with ample discounts for the distributor and dealer.
4. Distributed through a plan that recognizes, protects and supports the distributor and dealer and repays them for their sales effort.
5. Continuously and actively promoted through national advertising, direct mail, dealer helps and displays.

CID

WATER SYSTEMS

7008A

AND A HAPPY TIME FOR THE OWNER OF A

WAYNE WEATHER SELECTOR

IT'S A HAPPY TIME for Wayne dealers, too—the harvest-time for big profits and quick turnover on a small investment. Only one size Wayne "Mistoil" Burner to carry in stock—cares for all domestic installations. The fine reputation which this pioneer automatic heating equipment has acquired through many years of satisfying performance and unusual factory advertising cooperation make sales easy. Its supreme efficiency and service-free performance simplify your problems and make every Wayne user a booster for your business, too. Write today for the attractive Wayne dealer plan.

OBI **WAYNE OIL BURNER CORPORATION**
FORT WAYNE, INDIANA • EASTERN OFFICE, BROOKLYN, NEW YORK

BEST for ANY PIPE JOB

PERMANENT MODERN PIPING SYSTEMS FOR PLUMBING·HEATING and AIR·CONDITIONING

VISUAL PROOF

The STREAMLINE Fitting is the only solder type fitting on the market in which POSITIVE PROOF of a leak-proof joint can actually be seen without resorting to a pressure test.

When the plumber or steamfitter makes a joint with a STREAMLINE Solder Fitting and Copper Pipe, he can tell at a glance that the joint is leak-proof and permanently tight, by the appearance of the solder as a complete ring at the end of the fitting. All that is necessary is for him to comply with certain simple rules—and the result is automatically obtain. There is no guesswork about it. STREAMLINE Solder Fittings carry with them their own indisputable proof of a permanent, perfectly bonded joint.

★STREAMLINE COPPER PIPE AND FITTINGS

TRADE MARK REG. U.S. PAT. OFFICE

The STREAMLINE Cast Bronze Fitting is rigid and strong. The pipe openings are machined to accurate capillary fit for the pipe—and more than that, they stay perfectly round and retain their proper tolerance, even when subjected to the intense heat required when the higher melting point solders are used. In short, they make a more permanent, reliable and workmanlike job. They are more positive, convenient and satisfactory in the actual work of installing.

STREAMLINE Copper Pipe is not commercial copper pipe. It is a greatly improved product of uniform diameter and consistently close tolerance.

STREAMLINE Solder Fittings are manufactured in sizes from 1/4" to 12" inclusive, and in a complete range of reductions in tees and elbows. You connect directly to the smaller or larger pipe lines without the use of adapters with their additional expense both for material and labor. A BETTER JOB at LESS EXPENSIVE JOB—AND A MORE WORKMANLIKE JOB. USE STREAMLINE Copper Pipe, connect it with STREAMLINE Fittings—ALWAYS.

There is only one line of solder fittings manufactured under the trade name STREAMLINE. STREAMLINE Fittings were invented by engineers of the Mueller Brass Co., Port Huron, Michigan. These patented solder joint fittings are manufactured only by the Mueller Brass Co., and certain other reliable concerns who hold a License under Mueller Brass Co. Patents. STREAMLINE is the Registered Trade Mark of this Company.

WHEN YOU ORDER STREAMLINE COPPER PIPE AND FITTINGS, INSIST ON GETTING THEM.

Send for your copy of new Catalog G listing and illustrating the greatest range of solder type fittings on the market. Complete with dimensional drawings and roughing in dimensions—easy to find and to read.

STREAMLINE
PIPE AND FITTINGS DIVISION
MUELLER BRASS CO.
PORT HURON, MICHIGAN

PREST-O-LITE TORCHES

Trade-Mark

Ready for instant use

A flick of the lighter at the tip of the torch creates a high-temperature flame instantly.

ANY *Prest-O-Lite* Torch provides a high-temperature flame instantly. No pumping or preheating is necessary. You merely open the valve and light the gas, and the torch is ready for any soldering, heating or light brazing.

Ask your jobber to demonstrate how these modern, efficient and economical *Prest-O-Lite* Torches save many minutes every time you begin a job.

THE LINDE AIR PRODUCTS COMPANY
Unit of Union Carbide and Carbon Corporation
UCC
New York and Principal Cities
In Canada: Dominion Oxygen Co., Limited, Toronto

PRODUCTS OF A UNIT OF UCC UNION CARBIDE AND CARBON CORPORATION

ANTHRACITE HEATING NEWS

PUBLISHED BY ANTHRACITE INDUSTRIES, INC.
CHRYSLER BUILDING, NEW YORK

THE heating contractor selling Anthracite equipment is in an especially favorable position right now. Everywhere there is greatly increased interest in Anthracite heating, as a result of several new advantages, advances and economies.

1 Anthracite is cleaner and more uniform than ever, due to improved processing facilities at the mines.

2 The price situation with Anthracite is especially favorable. The cost of Anthracite has steadily gone down, while oil prices have gone up.

3 The most favorable thing is the amazing new automatic Anthracite equipment. Everyone is talking about it. New highly efficient furnaces and boilers, with or without magazine feed. New almost humanlike automatic Anthracite burners. New automatic Anthracite water heaters. New thermostats. This new equipment provides a fresh, new selling story.

All this sales activity is further stimulated by the broad promotion program of Anthracite Industries, Inc., representing 80% of all the Anthracite mined.

●

Wide possibilities for basement modernization are opened with modern Anthracite equipment. This basement has been transformed into a hobby workshop.

F L A S H

Thermostat

SALES NOW VERY ACTIVE

Thermostats offer you three great selling aids to start the heating season. They get you into homes, to tell the welcome story of "Automatic heat for a few dollars". They keep Anthracite users completely satisfied. They lead to sales of further Anthracite heating conveniences. Launch a campaign to get—

A THERMOSTAT ON EVERY BOILER OR FURNACE

Write for List of Approved Models

To transport the 1936 shipments of Anthracite, a train would have to be over 6800 miles long. Twice as long as the distance between New York and San Francisco. This train, of nearly one million cars, gives some idea of the important part that Anthracite plays in American comfort and prosperity.

●

Although automatic Anthracite burners (stokers) were introduced only a few years ago, sales this year are expected to reach an unprecedented figure. The stoker is one of America's fastest growing industries.

●

The cost of oil or gas is thought of in pennies, because they are sold in gallons or cubic feet. Anthracite costs DOLLARS a ton. Customers sometimes assume that oil or gas is cheap, whereas all-season heating costs prove the great economy of Anthracite. Tell your customers to think of heating costs in terms of the entire heating season. Point out that Anthracite, besides saving money, also makes it possible to store enough fuel to free them from worries about deliveries. Moreover, Anthracite can not leak, spill, or evaporate into dangerous fumes.

●

Different customers have different requirements for fueling convenience, and with Anthracite you can fit each need to a tee. A thermostat, and any adequate Anthracite furnace, or boiler, extends fueling periods up to twelve hours. Magazine feed boilers need no attention for 24 to 48 hours at a time. Automatic Anthracite burners automatically feed fuel and remove ash all season long.

This Seal of Approval appears on Anthracite equipment only after it has passed the most rigid tests in the heating field.

ANTHRACITE INDUSTRIES approved INCORPORATED

Pennsylvania
ANTHRACITE
COAL

NOTE: When you visit New York see the complete and permanent display of the most modern Anthracite equipment at the Architects' Building, 101 Park Avenue, at E. 40th Street. The building is within a few minutes of Grand Central Station.

Let's do some fact-finding about Lead Expansion Anchors

PERHAPS you look at them as "just anchors"—but architects, contractors and builders KNOW it is mighty important that lead expansion anchors have certain essential features to insure the utmost in utility and permanent security. You'll find them in Paine Anchors.

The Paine Company has made a close study of the requirements that must be met for greatest all-around satisfaction . . . and the fabrication of Paine Lead Expansion Anchors fills the technical specifications that have been established as necessary through a long, practical engineering experience.

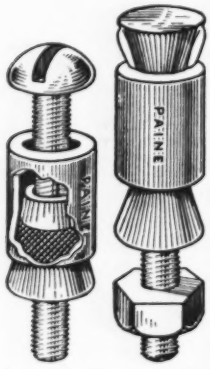


Fig. 900 Fig. 910

CHECK WITH THESE PAINE FEATURES

FIG. 900—MACHINE SCREW TYPE

Consists of a lead sleeve and a brass cone. The cone is knurled. It won't turn in tightening. Also, it is countersunk for easy entrance of machine screw to cone threads full depth of cone.

FIG. 910 — BOLT AND NUT TYPE

Consists of a lead sleeve, a lead cone, a bolt and a nut. The head of the bolt is double-finned so the bolt won't turn in tightening. Bolts and nuts are heavily cadmium plated.

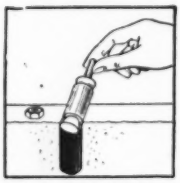
The right setting tool is included free with each order for 50 or more Paine Lead Expansion Anchors.

1 The right "mix" of lead and antimony in Paine Lead Anchors insures maximum strength and flexibility. This is important . . . be sure you're not losing out on this important feature.

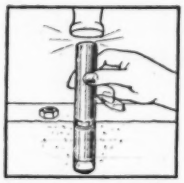
2 The scientifically correct "mix" in Paine Lead Anchors permits working safely in delicate, fragile material—at the same time securing a lasting, rustproof, jarproof, vibration-proof anchorage.

3 Because Paine Lead Anchors hold the entire length as well as the complete circumference of the sleeve, they are ideal for both shallow and deep anchoring. For extra-deep anchorage, extra sleeves and cones are available.

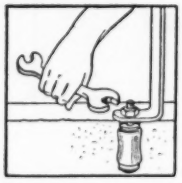
4 Paine Lead Anchors are correctly proportioned for greatest strength and durability. Our 25 years of leadership is built upon closely applied experience with anchoring problems in the building, plumbing and mill supply fields.



EASY TO USE—remove nut and drop balance of anchor in hole.



Expand the anchor with a few sharp taps of a hammer on the setting tool.

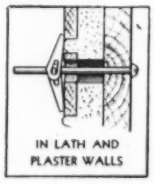


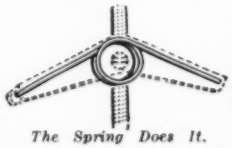
Put work in place, start nut on bolt—and tighten with wrench.

AND BESIDES . . . The Paine Company unconditionally guarantees Paine Lead Expansion Anchors to be the very best that engineering and manufacturing skill can produce for their purpose.

PAINE TOGGLE BOLTS *are also in step with the March of Time*

The same long experience that is built into Paine Lead Anchors is also found in Paine Toggle Bolts. They have, for years, been recognized leaders—the standard—in this field.

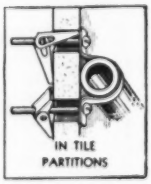


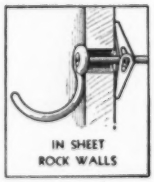


The Spring Does It.

The spring forces the wings open as soon as toggle is through hole regardless of position.

The only Toggle Bolt that holds in machalite. Works in any position and in practically any material.





EIGHTEEN STOCK STYLES NUMEROUS SIZES TO FIT ANY PURPOSE

NEW PAINE CATALOG TELLS ALL

Regardless of what your anchoring problem is you will more than likely find the answer in this book. Already much in demand. Get your copy now.

THE *Since 1912*

PAINE

COMPANY

Dept. 628—2947 Carroll Ave., CHICAGO

79 BARCLAY ST., N. Y.

Branch Offices in Many Large Cities

THIS GREEN BOX *means satisfaction for your customers...*

1. Independent shut off and pressure adjustment.
2. Large capacity flow chamber.
3. Pressure adjusting spiral for quieting action.
4. Monel metal bib screw.
5. Removable hard chrome valve seat.
6. Roller Bearing action.

The six features enumerated to the left explain the tremendous preference which the plumbers of America have shown for the Ace Ball Cock. In the five years and more since this ball cock was first put on the market it has won an unsurpassed reputation in the plumbing field. Plumbers recommend it on replacement work because they know it means customer satisfaction.

If you are one of the few who have not yet made the acquaintance of this different and superior ball cock, ask your jobber about the NIBCO Ace.

NORTHERN INDIANA BRASS COMPANY

ELKHART, INDIANA

SILENCE . . .

"STETHOSCOPE TESTED"

At the testing station—every Bethlehem-Doe Oil Burner is given a more careful examination than a life insurance prospect.

Yes, a physician's stethoscope is actually used in these tests—to amplify every mechanical sound. For, quietness is not only a prime sales essential—but it is also the assurance that wear-producing friction and vibration have been reduced to a minimum or entirely balanced out of the mechanism.

The stethoscope—used first on the "Monitor Mechanism," containing all working parts of the burner, and then on the burner housing—also proves conclusively the sound-insulation value of the "patented live rubber cushioning" between mechanism and housing that gives this burner a truly rubber-tired-ride through many years of silent, efficient service.

Another feature pioneered by Bethlehem. Another reason why architects, heating experts and owners agree "Bethlehem Engineering leads the Industry."

BETHLEHEM FOUNDRY & MACHINE CO.
BETHLEHEM, PA.

OBI

BUILT BY BETHLEHEM
"The best in oil heating first"

BETHLEHEM—DOE OIL BURNERS

Why Accept Less?

GUARANTEED FOR 200 LBS. STEAM PRESSURE

1. ABSOLUTELY LEAK-PROOF HEATING ELEMENT—guaranteed for all steam pressures up to 200 pounds per square inch.
2. *Time saving installation*—run in supply and return lines on either side.
3. *Maximum Headroom*—mount Speed Heaters right up against the ceiling, if desired.
4. *On the dot shipment*—of all popular voltages.

STURTEVANT REXVANE HEATERS—available for floor, wall, or ceiling installation in several types up to 1,421,000 B.T.U. (standard rating). Speed Heaters are made in ten sizes up to 329,000 B.T.U. (standard rating).

Sturtevant
REG. U. S. PAT. OFF.

Puts Air to Work

B. F. STURTEVANT CO., Hyde Park, BOSTON, MASS.
Branch Offices in 40 Other Cities
B. F. Sturtevant Company of Canada, Limited—Galt, Toronto, Montreal

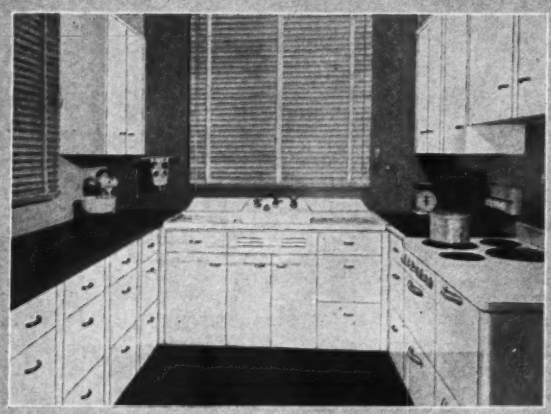
SPEED HEATERS ARE DISTRIBUTED BY CRANE CO.

Up go your Profits when you

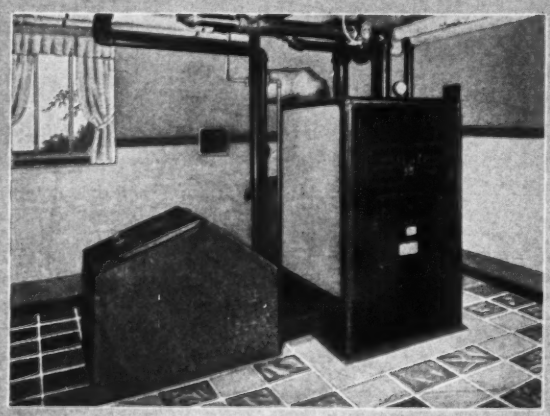
CRANEQUIP *ALL THREE!*

Kitchen—bathroom—basement. You'll find all three in almost every home. Three sources of profit for you. *Three* opportunities to build bigger volume. Crane offers you the easy, practical way to do this. Crane can help you widen your profit range and create bigger business for yourself this year and in the years to come.

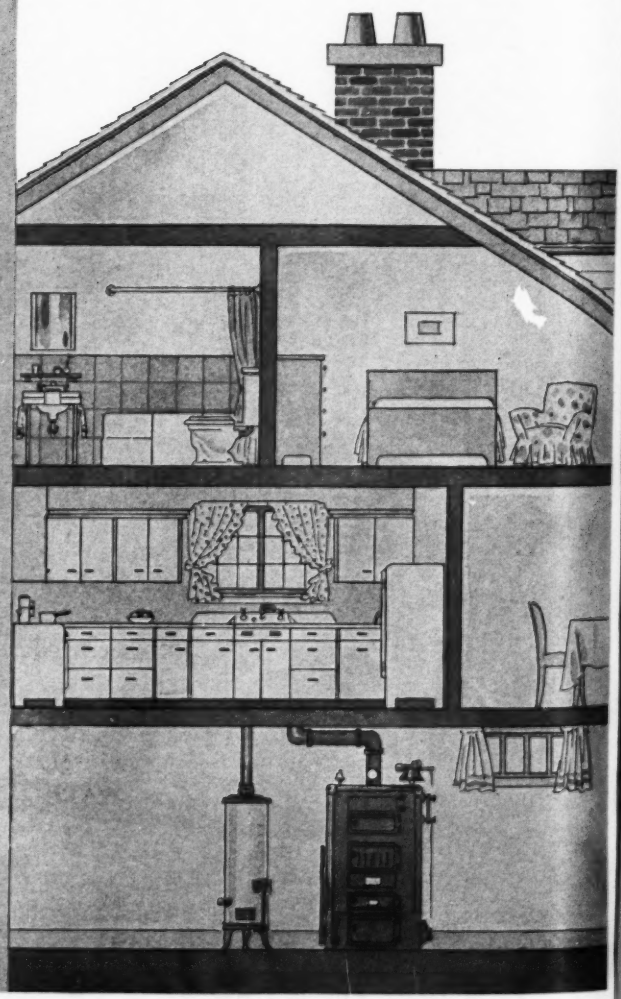
The tub is Crane *Neuvogue;* the lavatory, Crane *Corwith;* and the closet, Crane *Manor.* A beautiful bath of Crane quality—built to satisfy your customers.



A Crane *Sunnyday* sink—with its vegetable spray, depressed drainboards, stemware ledge and other modern features—is the last word in kitchen convenience.



Specially designed to secure maximum efficiency from stoker firing is this Crane Stoker-Fed Boiler—a recent addition to the complete Crane heating line for coal, oil or gas firing.



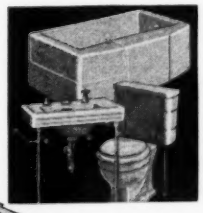
How CranEquipment opens new sales opportunities For You

It is almost invariably true that the installation of a new kitchen sink, a new lavatory or a new water heater in a home can lead to other sales. The extensive line of CranEquipment, covering practically every heating and plumbing need, helps you make more sales; and the general acceptance of the name Crane as a mark of the highest quality makes those sales easier. .

Heating Equipment

This is the season for heating replacement—thousands of homeowners are seriously considering the advantages of a fully automatic heating system this winter. Whether their choice of fuel is coal, oil or gas they will find just the boiler they need in the Crane line—just the size they need too—all backed by the Crane reputation for quality.

Plumbing Equipment



The name Crane on plumbing equipment is recognized by homeowners as a hallmark of quality. This reputation reduces sales resistance for the plumbing contractor—is a guarantee of satisfaction to the buyer. Whether it's a kitchen sink or laundry tray—a lavatory or bathtub—recommend Crane—your assurance of a satisfied customer.

To Help You Make More Sales

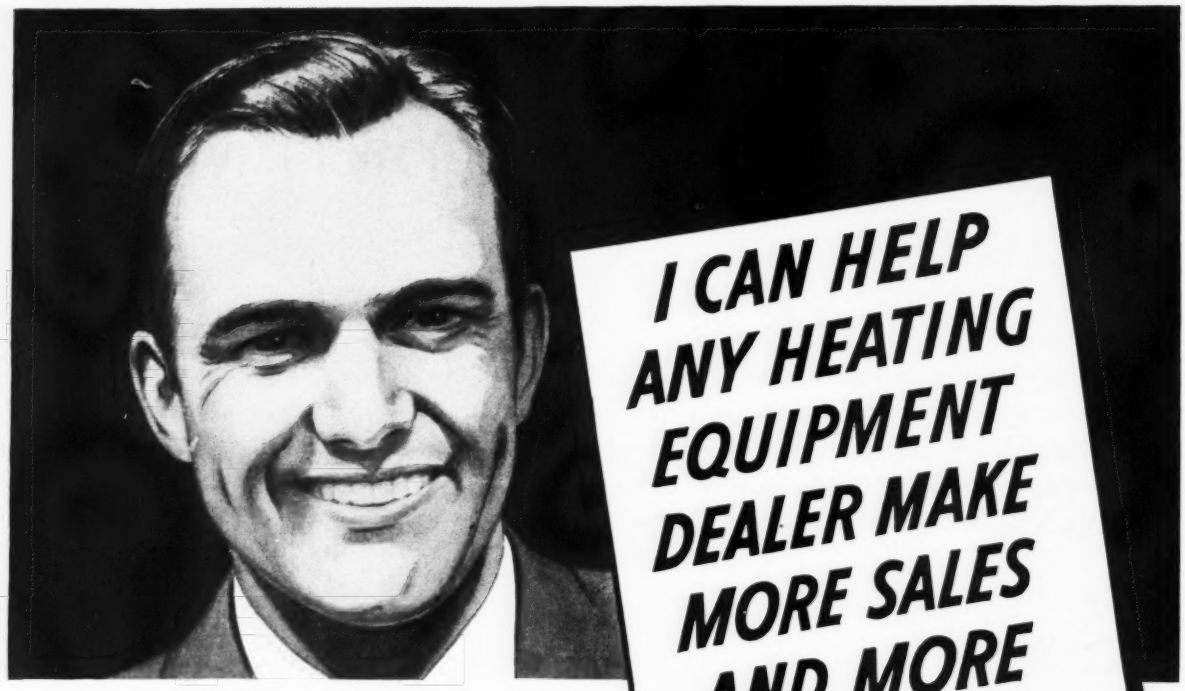
National advertising, reaching millions of consumers every month—a closely related campaign bringing the benefit of this advertising to every Crane Dealer—110 Display Rooms with the newest in plumbing fixtures and heating equipment for selection—folders, booklets, window posters—a complete sales effort and the Crane Budget Plan all designed for one purpose—to help you make more heating and plumbing sales. Ask the Crane Salesman.

CRANE

CRANE CO., GENERAL OFFICES: 836 SOUTH MICHIGAN AVENUE, CHICAGO, ILLINOIS

Branches and Sales Offices in One Hundred and Sixty Cities

VALVES, FITTINGS, FABRICATED PIPE, PUMPS, PLUMBING AND HEATING MATERIAL



I CAN HELP ANY HEATING EQUIPMENT DEALER MAKE MORE SALES AND MORE PROFIT

I'll sell heating equipment for you that you couldn't sell without me.

I know the people in your community . . . particularly those of moderate means who buy on the instalment plan.

They know *me*, too, through extensive national advertising of the service I render them, and through actual dealings with me in previous purchases of motor cars, refrigerators, ranges and other appliances.

They like the way I've treated them. They'll do business with me again. I can make them your customers.

I know how to investigate their credit standing without offense or embarrassment.

I know the danger signals that warn of bad risks. I can protect you from them.

I know how to keep collections up to date and relieve you of the embarrassment of an occasional repossession, without losing you any of your customers' good will.

It's my business to know all these things and to employ them to your advantage.

I'm the local manager of a Commercial Credit Company office. You can get in touch with me in any of 193 offices in the principal cities of the United States and Canada. When you adopt Commercial Credit Company financing for your time sales you get 100% cooperation from me on credit, collections and remittances.

You can concentrate on selling.

RADIOS
RANGES
REFRIGERATORS
ELECTRICAL EQUIPMENT

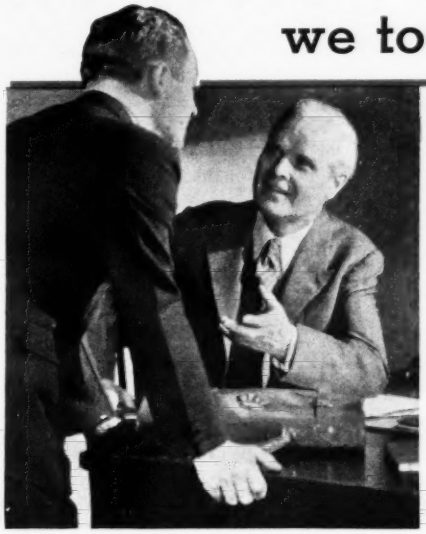
COMMERCIAL CREDIT COMPANY

COMMERCIAL BANKERS
CONSOLIDATED CAPITAL

HEADQUARTERS: BALTIMORE
AND SURPLUS $65,000,000

SERVING MANUFACTURERS, DISTRIBUTORS AND DEALERS THROUGH 193 OFFICES IN THE UNITED STATES AND CANADA

"We experimented with some other makes—but—we didn't make any real money until we took on REXOIL . . ."

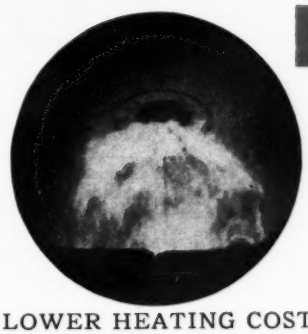


REXOIL OIL HEAT
WITH PATENTED FUEL-HOARDING TURBULATOR

"We admit — trying some other burners before we hit on Rexoil—some were cheaper — some surrounded by promises the maker couldn't keep—but it took the Reif-Rexoil crowd to show us how to make money and hold satisfied customers. In 16 years no Rexoil has ever worn out. A Rexoil once sold stays sold—and there is no 'after service' to sap the original profit. We've always had direct factory cooperation—and had it when we needed it quick. That's why we're making money."

LOOK OVER THESE FEATURES THAT SELL REXOIL

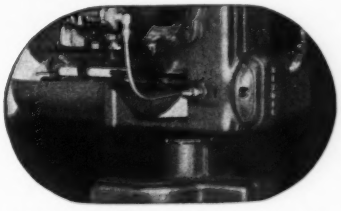
Feature No. 1



LOWER HEATING COST

The famous Rexoil Flame of Flames represents an unparalleled engineering achievement in accelerated combustion—a supercharged intense heat!

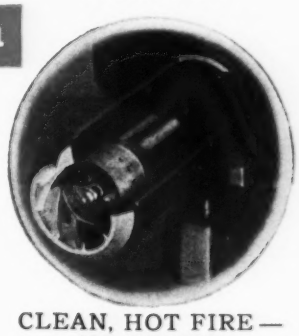
Feature No. 2



PATENTED, CONTROLLED TURBULENCE

Exclusive and patented air tube design and assembly which scientifically controls air volume within the air tube—better distribution of air currents for combustion—a hotter, cleaner flame.

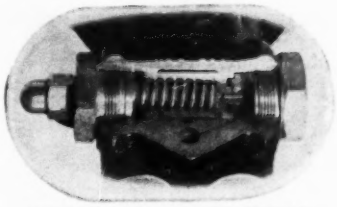
Feature No. 3



CLEAN, HOT FIRE — NO WASTE

Only in Rexoil can you get the Hi-Heat Combustion Head—a patented development which effects fuel savings of 20 to 30 per cent. No wasted fuel, and a cleaner, hotter flame.

Feature No. 4



QUICK CUT-OFF FUEL HOARDER

The traffic cop that watches the flow of oil—controls every drop so that none may be wasted. Cuts off the fuel supply during an emergency, or a normal shutdown.

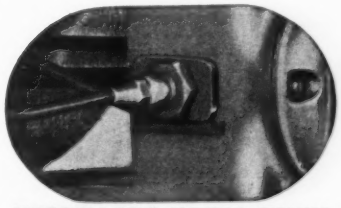
CONSISTENT ADVERTISING PROMOTION

Feature No. 6

backs up the Distributor and Dealer. Rexoil goes a long way to help the distributor and dealer sell—national advertising—trade papers—newspapers—movies—literature—are all a part of Rexoil Complete Sales Plan.

If you are open for a better burner proposition—write Rexoil now.

Feature No. 5



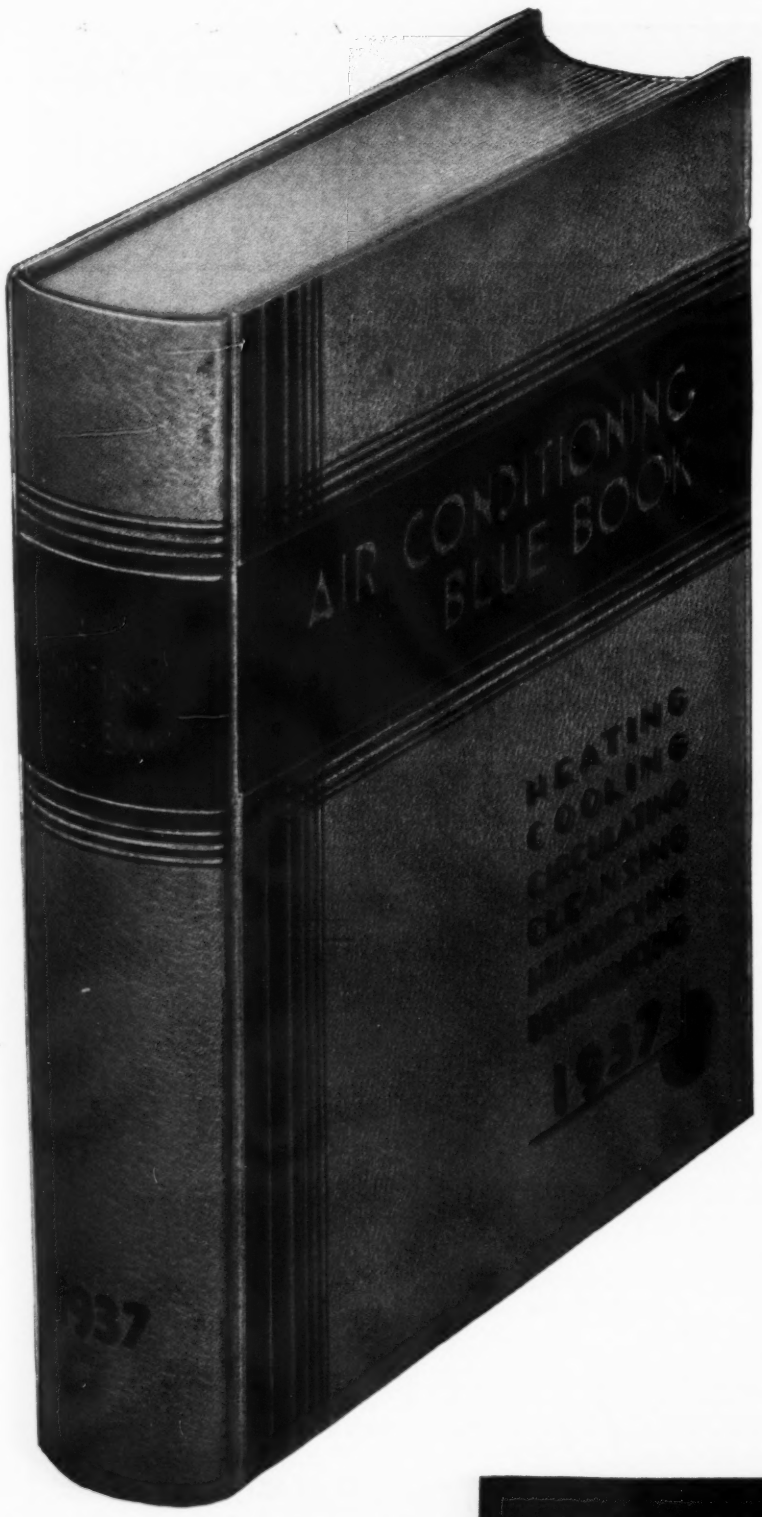
INCREASES EFFICIENCY

This exclusive Rexoil device forever dispels the possibilities of make-shift adjustments and is a guarantee for the development of the full rated capacity of the boiler or furnace.

REIF - REXOIL, INC., 35 Carroll St., Buffalo, N. Y.

Manufacturers of Rexoil Conversion Burners, Boiler Units, Furnace Units and Direct Fired Conditioners.

With all its Advantages Rexoil Costs You NO MORE



At
EVERY STAGE

in the progress of your air conditioning installations . . . from preliminary conversations to conferences over the drafting board, through to the actual task of installing the equipment . . . you have constant need for the AIR CONDITIONING BLUE BOOK. It is the one central source of buying and practical technical information so essential to this type of work. It contains:

MANUFACTURERS' CATALOGS. In this section well over a hundred pages have been devoted to the catalogs of leading manufacturers of heating and air conditioning equipment. Product information, including illustrations, descriptions, sizes, capacities and various other specifications, are clearly set forth. Conveniently indexed and arranged to facilitate use.

TECHNICAL REFERENCE DATA. Included in this section you'll find several hundred pages of vital information such as standard tables, rules, charts, diagrams and various other technical reference material so necessary to the man who designs, specifies, installs or services heating and air conditioning equipment.

CLASSIFIED DIRECTORY. Listed in this directory are over six hundred items used in heating and air conditioning. The entire section is alphabetically classified with numerous cross references, permitting you to locate, quickly, any item desired. Under each heading is given the names of manufacturers who make the item. Manufacturers whose catalogs appear in the catalog section are indicated with a ● wherever their products are listed in this section.

TRADE NAME SECTION. There are many instances where you may be familiar only with the trade name of an item. This section permits you to establish, quickly, the name of the manufacturer. You'll find frequent occasion to refer to this section.

NAME AND ADDRESS SECTION. The names and complete addresses of all known manufacturers of items used in heating and air conditioning are listed in this section.

You'll want to keep the AIR CONDITIONING BLUE BOOK handy at all times for ready reference. If you have not already done so, order your copy of the 1937 edition today. The price, postpaid, is $3.00 per copy.

AIR CONDITIONING BLUE BOOK

1900 PRAIRIE AVENUE, CHICAGO, ILL.

A Wide Open Letter to the Air Conditioning, Heating, and Refrigeration Industries!

from the Refrigeration & Air Conditioning Institute of Chicago

Number 1.

Subject: BUILDING TO SERVE YOU BETTER

This is the first of a series of informal messages addressed to manufacturers, contractors, dealers and distributors, in the fields of air conditioning, heating, ventilating and refrigeration. The purpose of the messages is to acquaint the employers in these fields with the work of the Refrigeration and Air Conditioning Institute, and to report regularly on the progress the Institute is making in furnishing competent and thoroughly trained men to meet these industries' needs.

A recent survey shows that in air conditioning alone, from five to seven thousand additional trained men will be needed every year for the next ten years. Ordinarily, this condition might prove a serious handicap to an industry advancing with such rapid strides as is industry and air conditioning. But fortunately, this institution working in close cooperation with more than seventy manufacturers, will supply the men the industry needs . . . **trained exactly as the industry wants them trained.**

Considering the vast importance of its work, and the great benefits employers will derive from its operation (without cost to them), the Institute believes that every employer in the fields of air conditioning, heating, ventilation and refrigeration should read its messages regularly.

• • •

To meet the increasing demand for RACI Trained men, and to double the time now being allotted for final training in its laboratory and shops, the Institute is now preparing to spend a quarter million dollars for new buildings and new equipment. Two of the three buildings now used in its work will be torn down completely and the new laboratory and shops building shown below, adjoining the present administration building on the right, will be ready for student training early in 1938. This building will be of glass block construction, windowless and completely air conditioned. It will contain two floors, each 65 x 205 feet, on which will be installed every type of air conditioning, heating, ventilating, and refrigeration equipment for exclusive student operation and study, under a group of competent engineers and instructors (one to each ten students). Students will spend approximately 200 hours working on this equipment, but only after having put in more than 1,000 hours in preparatory study in their own homes.

• • •

The Refrigeration and Air Conditioning Institute has been "officially" endorsed by more than seventy of the leading manufacturers in the field, and its policies and the conduct of the Institute is supervised by a Board of Governors made up of engineers and executives appointed by some of these manufacturers. The members of this Board come from their plants to Chicago for regular conferences and inspections of the Institute's work. We believe this to be the only Institution of its kind to be officially endorsed by a large group of outstanding manufacturers and its training program actually supervised by outside engineers and executives.

• • •

We invite you to visit the Institute and inspect its facilities and methods the next time you are in Chicago.

Ray A. Smith

PRESIDENT

P. S. If you do not have a copy of the Institute's "Report to the Industry" . . . a 200 page, cloth bound book with 15 original photographs. . . . Please ask for it on your letterhead, giving name and title of executive to whom it should be directed. No obligation.

REFRIGERATION and AIR CONDITIONING INSTITUTE · 2130-2158 Lawrence Ave., CHICAGO

7 Pluses for Yo

THERE are seven pluses with the Minneapolis-Honeywell Lo-Water Cut-Off – distinct advantages to you as well as your customers. This Lo-Water Cut-Off is simple to install and easy to sell because it is now available at new low prices. Compare the M-H Lo-Water Cut-Off and you'll readily see the seven pluses for yourself.

1. QUICKLY INSTALLED . . . Fits standard half inch gauge glass openings. Lower fitting may be readily removed if there is not enough room to swing entire assembly.

2. FLEXIBLE MOUNTING . . . Copper tube between mountings can be cut to accommodate various center dimensions and easily shaped to allow for any slight misalignment.

3. ALARM OR SIGNAL CIRCUIT . . . This feature is available, on special order, as is the reset mechanism which requires manual attention, after a shut-down, to restore burner operation.

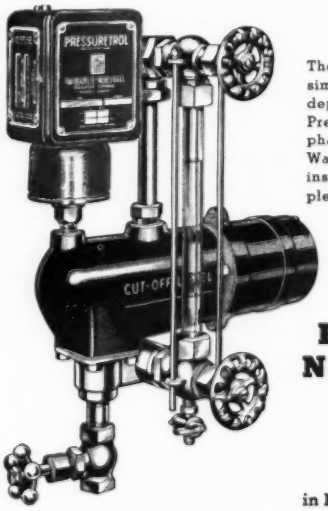
4. DISMOUNTING UNNECESSARY . . . Switching mechanism may be removed without dismounting instrument from boiler.

5. IMPROVED MERCURY SWITCH . . . Control circuit is handled through an improved switch with a reputation for efficiency, quick action and rugged construction.

6. M-H QUALITY THROUGHOUT . . . The reputation of Minneapolis-Honeywell behind this cut-off is your assurance and the assurance of your customer that this instrument will give long years of trouble-free protection.

7. NEW LOW PRICES . . . Despite the distinct advantages of the Minneapolis-Honeywell Lo-Water Cut-Off, prices are far less than you would expect to pay for a quality instrument.

If you have not already seen the new M-H Lo-Water Cut-Off, investigate at once. Your jobber or any Minneapolis-Honeywell branch or district office can give you full particulars. Minneapolis-Honeywell Regulator Company, 2801 Fourth Avenue South, Minneapolis, Minn.



The M-H Lo-Water Cut-Off is simple, sturdy and thoroughly dependable. When the M-H Pressuretrol, as illustrated in phantom, is added to the Lo-Water Cut-Off, the assembled instrument is known as a Duplex Switch.

DEALER'S NEW PRICE

$14.25 each

$13.55 each

in lots of 10 assorted units

MINNEAPOLIS-HONEYWELL

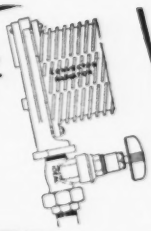
AUTOMATIC CONTROLS MH

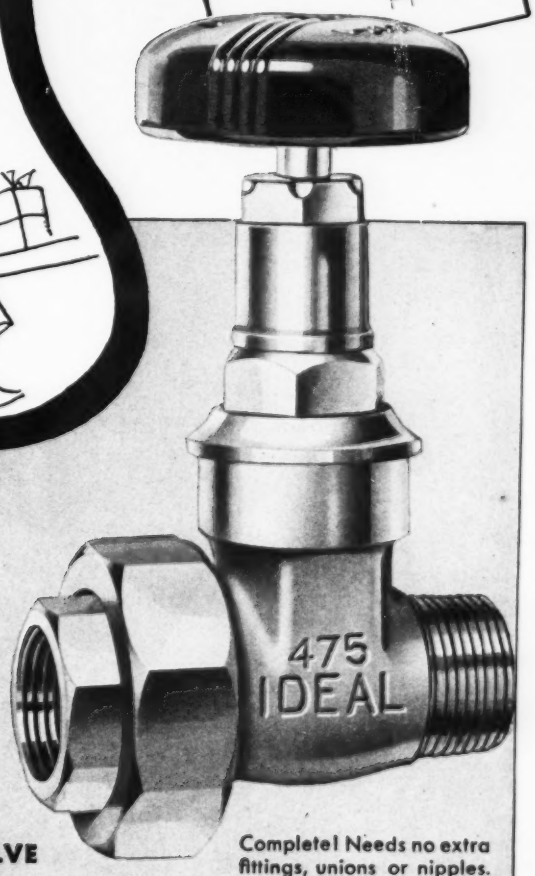
LO-WATER CUT OFF

DEPENDABLE CONTROLS COST LESS THAN SERVICE

When you're in a tight spot

See how easily the No. 475 fits into limited space under Convector.





NO. 475 IDEAL

Packless

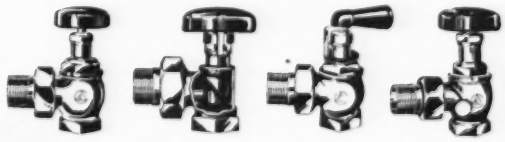
CONVECTOR GATE VALVE
for steam • vapor • hot water

Complete! Needs no extra fittings, unions or nipples.

The limited space beneath concealed radiators calls for a valve of compact design. The new Packless No. 475 Convector Gate Valve is made to fit that limited space. It is easy to install. The valve is screwed directly into the Convector. The tailpiece is screwed onto the stub. The tail nut is tightened — and the job is done.

In addition, the No. 475 has the advantage of packless construction. It never leaks, never needs repacking, will never be a source of trouble to you or to your customer. It comes in 4 sizes, from ½" to 1¼", each valve packed in an attractive, metal edged box. A short explanation of its many features will convince any customer of the wisdom of paying a few cents more for the extra protection and service the No. 475 gives. Order from your jobber — or write today to

Accessories Division
AMERICAN RADIATOR COMPANY
DIVISION OF AMERICAN RADIATOR & STANDARD SANITARY CORPORATION
40 West 40th Street, New York, N. Y.



A COMPLETE LINE OF PACKLESS VALVES FOR EVERY NEED

Arco Accessories

MAKE ANY HEATING SYSTEM BETTER

Accessories Division
AMERICAN RADIATOR COMPANY
40 West 40th Street, New York, N. Y.
Please send me at once the following new bulletins on IDEAL-ARCO ACCESSORIES. (Check those wanted.)

- ☐ Radiator Valves
- ☐ Regulators and Controls
- ☐ Air, Vacuum and Vent Valves
- ☐ H. A. Thrush & Co.—McDonnell-Miller Co. products
- ☐ Thermometers-Gauges Misc. Accessories
- ☐ Heaters for Domestic Hot Water

NAME.....
ADDRESS.....STATE.....DE-10
CITY.....

TAG GIVES NEW PROMINENCE TO A GUARANTEE WHICH HAS BEEN IN FORCE FOR FIFTY YEARS!

TRIMO GUARANTEES THE *Whole* WRENCH

THIS GUARANTEE MEANS MORE THAN JUST REPLACEMENT!

***It Means* SAFETY . .** that lets you pull your weight on a risky job.

***It Means* STRENGTH** that protects against breakage delays.

***It Means* SERVICE . .** in a full measure over a long period of time.

REMEMBER, Trimo is the wrench that gives you the extra strength and wear of 100% drop forged alloy safety steels — no increase in price.

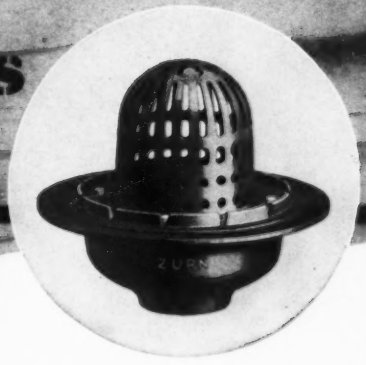
EVERY PART OF THIS
"TRIMO-ALLOY"
PIPE WRENCH
JAWS · FRAME · HANDLE AND NUT IS
Guaranteed
ANY BREAK DUE TO DEFECTIVE MATERIAL WILL BE *REPLACED*
FREE OF CHARGE
TRIMONT MFG. CO. BOSTON, MASS. U.S.A.

TRIMONT MFG. CO., INC.
Roxbury (Boston), Mass.

ZURN-ERIE

SERVING THE INDUSTRY OVER 30 YEARS

PLUMBING DRAINAGE PRODUCTS ROOF TO BASEMENT



Zurn Roof Drains Put Quality Up Where It Belongs.

● Only by using the same make of drain and fittings throughout can plumbing drainage systems have "MATCHED EFFICIENCY" from roof to basement. The Zurn line makes this possible. It includes everything you need except the pipe.

And it's good business to avoid the confusion that occurs on the job when two or more makes of products are used. A straight-forward job is the most profitable. Make yours that kind by using Zurn drains and fittings from roof to basement.

J. A. ZURN MANUFACTURING COMPANY

SALES OFFICE AND FACTORY — ERIE, PENNSYLVANIA

Floor or Shower Drains That Leave No Want or Need Unsatisfied.

THE ZURN LINE INCLUDES: Traps, Drains, and Interceptors for all purposes; Backwater Devices; Closet and Lavatory Carriers; Closet Connections; Clean-outs; Swimming Pool Equipment; Drainage Fittings.

ZURN **PLUMBING DRAINAGE PRODUCTS**

are the most practical to use.

Zurn Products The Fitting Solution For All Plumbing Drainage Problems.

CALL ON THESE ZURN REPRESENTATIVES. THEY'LL BE GLAD TO HELP YOU.

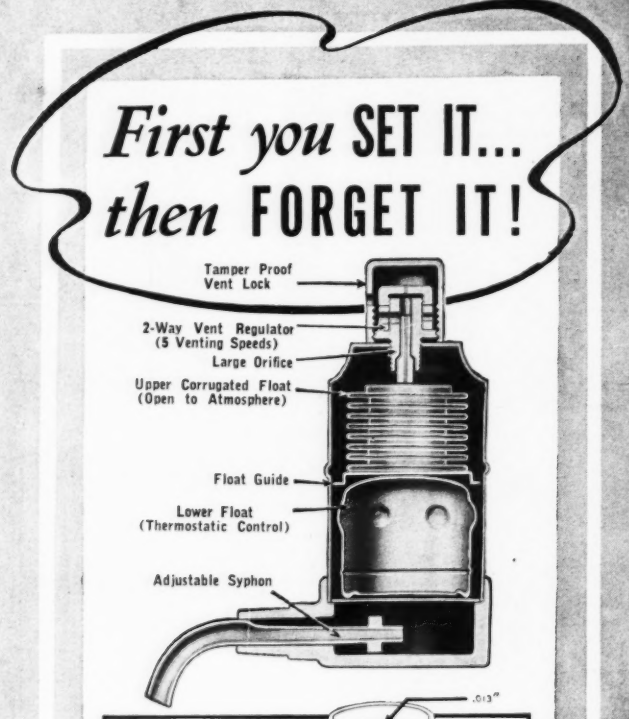
. Mitchell, Jr. . . . Albany, N. Y.
gh W. Powel . . . Atlanta, Ga.
ed L. Eidman . . Baltimore, Md.
Harris Barbour . Boston, Mass.
nes Glass, Jr. . . Buffalo, N. Y.
T. Purcell Chattanooga, Tenn.
O. Anderson . . Cincinnati, O.
W. Duschak . . Chicago, Ill.
A. George . . . Cleveland, O.
chert D. Moe . . Denver, Col.
J. Rieger . . . Detroit, Mich.

Paul P. Wagner . Harrisburg, Pa.
C. H. Dinkelacker . Houston, Texas
L. L. Wright . Indianapolis, Ind.
H. M. Ludlow . . . Jackson, Miss.
J. C. Pastor . . Jacksonville, Fla.
Fletcher-Weil Co. . .
. . Los Angeles, Cal.
C. E. Schumell Milwaukee, Wisc.
Fred J. Barr . Minneapolis, Minn.
R. G. K. Ward . . Montreal, Can.
P. E. Hanlin . Newport News, Va.
L. W. White . . New York, N. Y.

Saul Moser . . . Newark, N. J.
A. S. Rodgers . Philadelphia, Pa.
Wayne Paulin . . Pittsburgh, Pa.
Wm. H. Shephard . Rockhill, S. C.
Fletcher-Weil Co. . .
. . San Francisco, Cal.
G & M Schwabe . .
. . San Juan, Porto Rico
J. W. Mitchell . . Seattle, Wash.
A. John Galat . . Stratford, Conn.
James P. Harper, Washington, D.C.

First you SET IT... then FORGET IT!

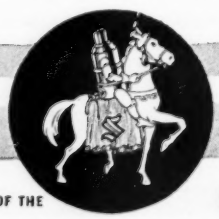
NOT content to rest upon their laurels, the engineers responsible for its unique, scientific design and remarkable performance first set about to *prove* the SLATER Dual Float Vacuum Regulator Valve and then, having done so, set about to *improve* it. At the right, graphically illustrated, is the culmination of their efforts . . . a *new* SLATER *Two Way Vent Regulator* with a new, redesigned top that tops them all. Due in part to its new lock-vent feature, which provides five speeds of venting, this valve is destined to bring extraordinary fuel savings and a high degree of comfort to the home owner as well as real peace of mind to the contractor who installs it. Yet this is but one of the features which stand the SLATER Valve out in front and make it so popular with the trade. It's a valve you'll want to recommend for *every* radiator to provide accurately controlled venting with its added comforts for your customer as well as added *profits* for yourself. Better investigate . . . write for descriptive literature about this and other valves in the complete SLATER line.



Assembly view of the new SLATER Vent-Lock feature which permits accurately, equally controlled venting of the entire one-pipe system. Choice of five venting speeds allows a wide range which meets every possible requirement. Once you set it you simply forget it.

Maximum Vent ..... .0103"
Minimum Vent ..... .013"

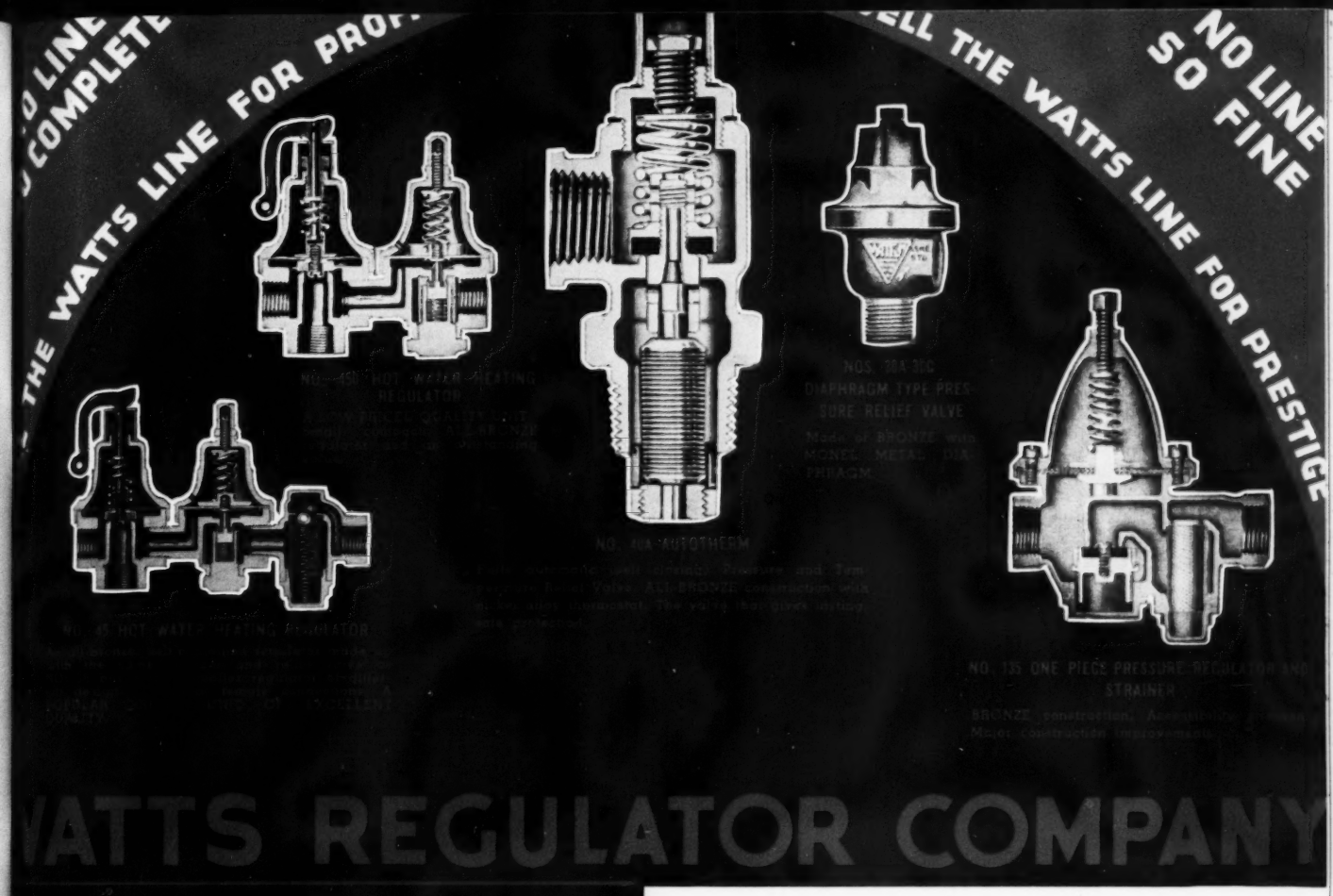
SLATER MANUFACTURING CO.
24 WATER ST., WAKEFIELD, MASS.
SMITH & DALE U. S. DISTRIBUTOR 457 STUART STREET BOSTON, MASS.

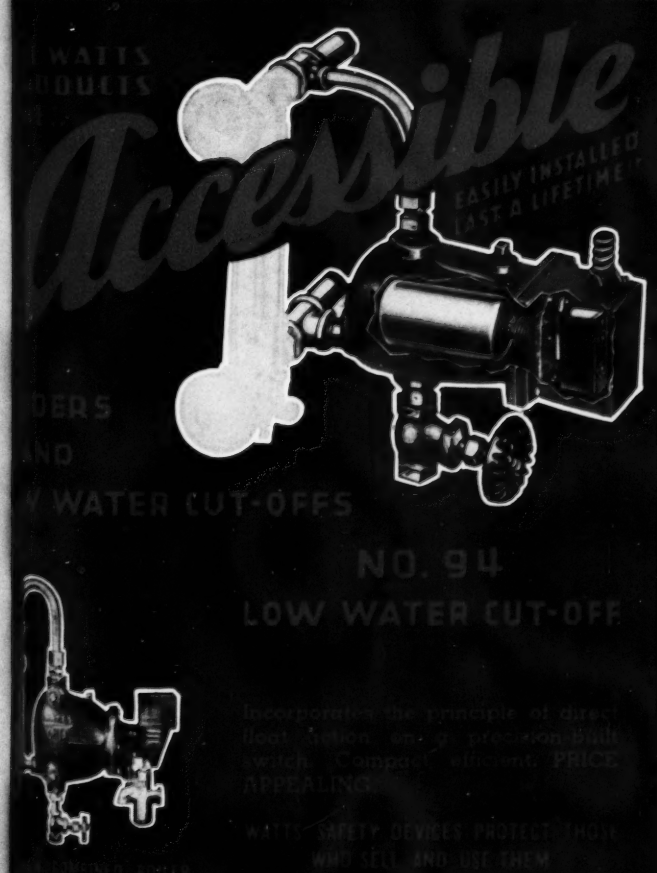


SILENT KNIGHT OF THE HEATING SYSTEM

Slater

DUAL FLOAT VACUUM REGULATOR VALVES


THE WATTS LINE FOR PROF
ELL THE WATTS LINE FOR PRESTIGE
NO LINE SO FINE
NO. 135 ONE PIECE PRESSURE REGULATOR AND STRAINER
ATTS REGULATOR COMPANY



It's Sound, Profitable Business to Sell Watts Regulating and Safety Devices

For over three generations Watts has built and sold safety regulating devices. Leadership, established over sixty years ago, is today generally recognized.

Watts pioneers in different fields; Watts keeps step with progress. Watts engineers never accept second place or risk reputations on ill-conceived items. Watts will not allow manufacture to weaken effectiveness in any way for WATTS PRODUCTS MUST SERVE AND IN EVERY PARTICULAR BE ADVANCED IN PRINCIPLE AND DESIGN TO MEET THE RAPID ADVANCES OF THE PLUMBING AND HEATING TRADE.

Watts builds of BRONZE AND FINE MATERIALS and maintains its workmanship at a high standard. Quality is never sacrificed for price, yet Watts, through scientific management and volume production, is able to meet all legitimate competitive selling.

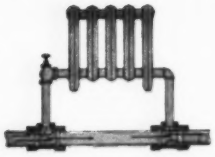
We repeat . . . it's good sound business for YOU to push the Watts LINE . . . the most extensive, most up-to-the-minute LINE of relief valves, feeders, low water cut-offs and hot water heating regulator systems in the world.

Send direct, or ask your wholesaler for this complete catalogue No. 37, also condensed catalogue and price sheet No. 37A.

WATTS REGULATOR CO.

Lawrence, Mass.

BUY FROM YOUR LOCAL WHOLESALER



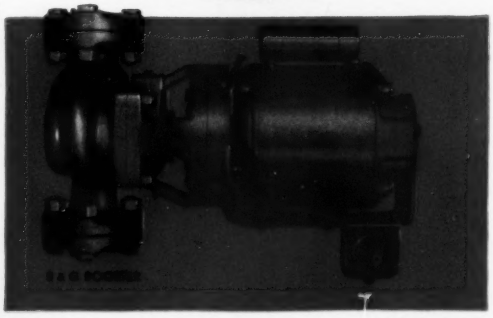
A SIMPLE COMPARISON SWINGS APARTMENT HOUSE BUILDERS TO *MONOFLO* WARM WATER HEATING

Operating economies increase investment returns —greater comfort adds to rental desirability

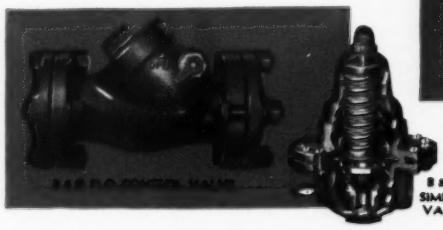
Today's trend in apartment heating is illustrated by the installation in this group of buildings. Each of the four units is equipped with a B & G Monoflo Forced Hot Water System. *Comparison of relative values left no other alternative!*

Check off the advantages of Monoflo Heating. Economically installed because it is a one-pipe system. Economical to operate because of the inherent efficiency of forced circulation. Summer-Winter domestic hot water heated by the same boiler that heats the building—at extremely low cost. Comfort to tenants because of genuinely modulated heat supply which prohibits over and under heating . . . none of the baking, desert-dry conditions so frequently found in apartments.

These results are obtained with simple inexpensive equipment. Each of the buildings above is equipped with a 2" B & G Booster, 2" B & G Flo-Control Valve and a D & T Simplex Pressure System. B & G Monoflo Fittings are installed at each radiator's supply and return connections to the *single* main. Nothing more required.



SEND TODAY FOR COMPLETE DESIGN AND INSTALLATION DATA ON B & G MONOFLO SYSTEMS



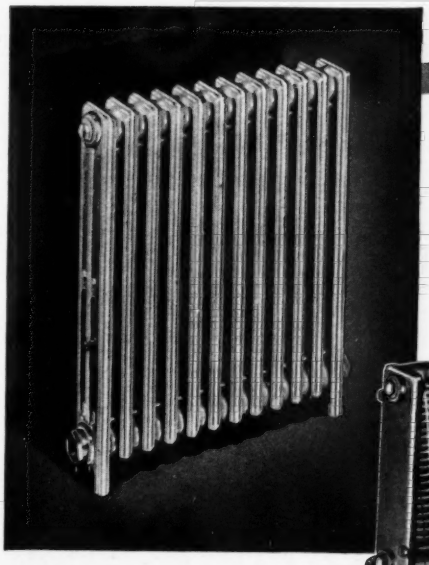
B & G SIMPLEX VALVE

The B & G Monoflo System can be installed with any type of hand or automatically fired hot water boiler. It gives equal satisfaction in the small home or large, multi-unit dwelling. Complete stocks carried by all wholesalers.

MONOFLO B&G SYSTEM

BELL & GOSSETT CO. 3000 Wallace St., Chicago

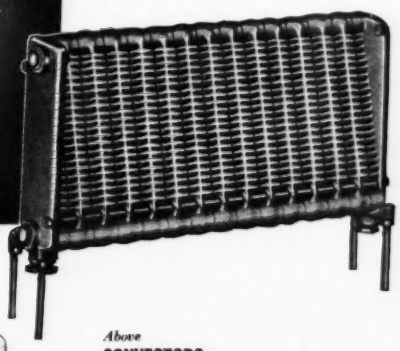
Canadian Licensee: S. A. Armstrong, Ltd., 720 Bathurst St., Toronto

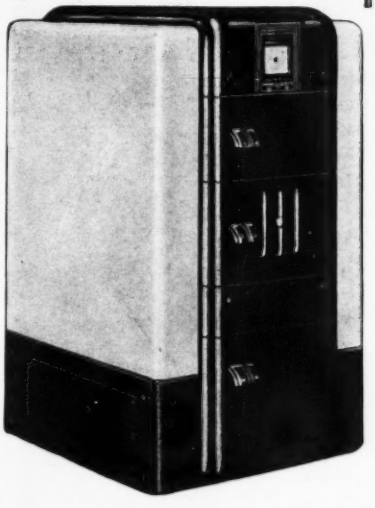


Left

NATIONAL ART RADIATION:

The compact, graceful design of National Art Radiators harmonizes with modern interiors. Takes less floor space; may be easily, inexpensively recessed.





Above

CONVECTORS:

There are 22 highly significant advantages in National Aero Convectors. See, especially, what wide fin spacing and integrally-cast fins mean to you.

Left

NATIONAL MULTI-FINGER HEAT EXTRACTOR BOILER:

A multiplicity of extended flue fingers makes this new National boiler highly efficient. Many new features. Streamlined. Available for hand, stoker or oil firing.

Below

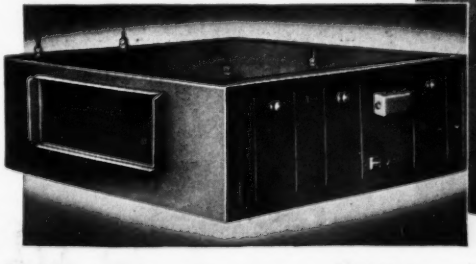
V. P. NATIONAL STEEL BOILER:

For residences. A beautifully styled, steel-jacketed, heavily insulated, compact boiler with built-in copper heater for year 'round domestic hot water.

Below

MODEL 450 AIR CONDITIONING UNIT:

One of the National complete "packaged weather" units which can be arranged to supply all the functions of true air conditioning. Extremely quiet.



THROW

the responsibility on us!

There's an extremely important point we'd like to get across to you—and we'd like to explain it to you in person and in detail. It is the *point of undivided responsibility!*

National makes a complete line of home heating and air conditioning products —gives you *one* responsible source for *all* your heating equipment. Talk to your nearest National Radiator Wholesaler. Let him explain the advantages of National Art Radiation, the 22 basic features of National Aero Convectors. Let him show you what National is doing in air conditioning. Examine point-for-point the construction and performance of National steel and cast iron boilers, for oil, gas and stoker firing, the new Series A Heat Extractor boiler, National's complete Oil Heating and National's gas boilers.

Yes, when you specify the complete job by National there's only *one* source of responsibility to insure integrated performance and complete satisfaction. National has never had to recall any product from the market! You'll know you can rely on National, when you

NATIONAL·RADIATOR·CORPORATION

Johnstown, Pennsylvania

Branch Offices: Baltimore · Boston · Buffalo · Chicago · Cincinnati · Cleveland · Detroit · Milwaukee · Newark · New York · Philadelphia · Pittsburgh · Richmond · Washington

"CLEAN WATER"

...FROM CURB TO FAUCET...

MAKES MORE SALES

TURN little repair jobs on old, rust-eaten tanks into big profit jobs – with Arcoloy and Arco Copper. A short, convincing story does the trick. Explain that Arcoloy is a patented metal with the beauty of copper, the strength of mild steel. Show the rustproof, leakproof construction – 100% Arcoloy throughout – even to seams and spuds welded with Arcoloy rod. Installed with Arco *Wrought Copper* Fittings and Pipe you can guarantee perfect, trouble-free, rustproof hot water. Installation and roughing in dimensions are the same – but you get more profit from these new products.

Let the "Clean Water" story make sales and money for you. Display Arcoloy and Arco Copper. Ask your Plumbing and Heating Supplies Jobber. Or write.

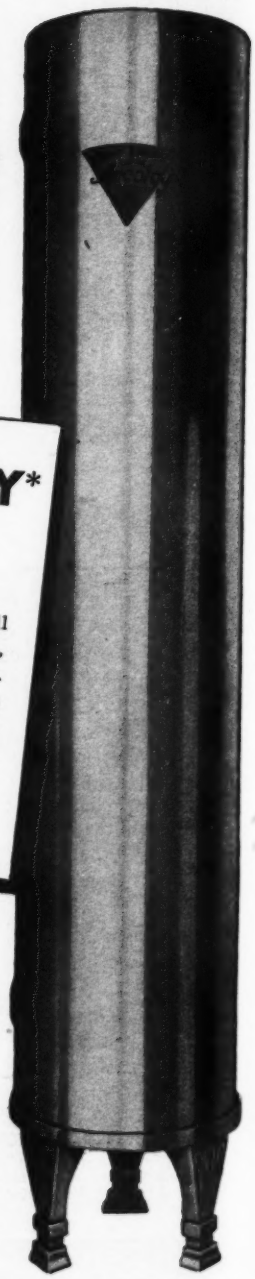
ARCO PIPE & FITTINGS DIVISION
AMERICAN RADIATOR COMPANY
DIVISION OF AMERICAN RADIATOR & STANDARD SANITARY CORPORATION
40 West 40th Street, New York, N. Y.

ARCOLOY*
Range Boilers and Tanks

come in 7 sizes, with full rated gallonage. 2 weights, standard and extra heavy. Guaranteed for 20 years under normal water conditions. Arcoloy Range Boiler stands, finished to match, increase height from floor up to 2".

WRITE TODAY FOR NEW DISPLAY MATERIAL

These two cards, displayed on your counter or in your window will attract attention, bring prospects in.

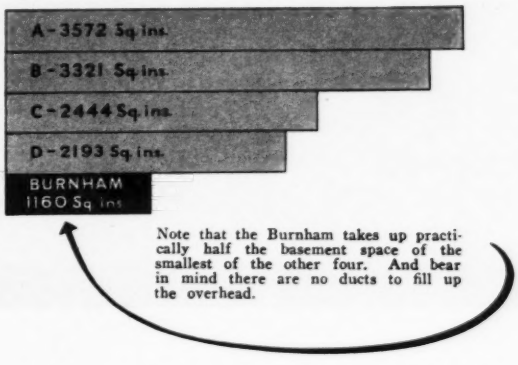


*A patented metal composed of 95% pure copper with the strength of mild steel. U. S. Pat. No. 2017025.

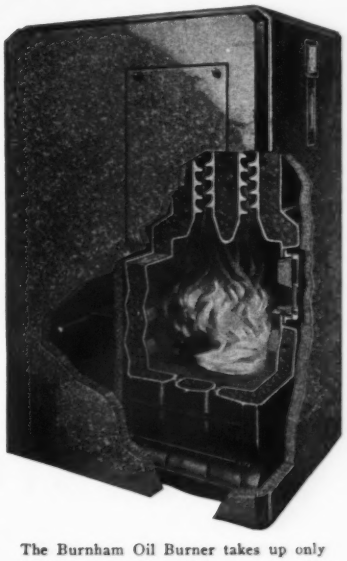
ARCOLOY*

RANGE BOILERS Arcoloy AND TANKS

GUARANTEED FOR 20 YEARS UNDER NORMAL WATER CONDITIONS



Note that the Burnham takes up practically half the basement space of the smallest of the other four. And bear in mind there are no ducts to fill up the overhead.



The Burnham Oil Burner takes up only 1160 square inches of floor space. No other basement equipment necessary.

How to Stop Cursing About Basement Fill-Ups

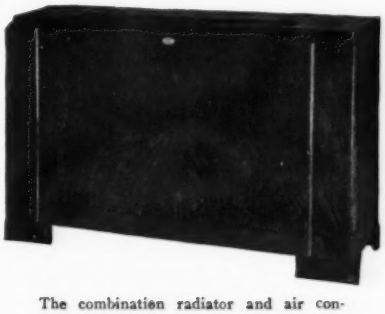
LAST week we made careful measurements of the floor space taken up by four of the leading air conditioning basement outfits, in comparison to the Burnham. The chart above, A-B-C-D, shows you the comparison at a glance.

There's a lot of cursing being done about the space in basements that air conditioning heating outfits take up. There's going to be a lot more of it, too, when the owners of houses now being built see the huge, space-taking air conditioning equipment being set up in their basements.

They are going to be no end sore about it, when they find the room they expected to use for recreation, a shop, or a play-place for the kiddies all cluttered up with equipment and ducts.

When they get to comparing the high cost of their system with the much lower cost of the Burnham Air Conditioning one, put in by a neighbor or friend, they are going to be more than sore.

Send for the Burnham Air Conditioning Catalog. Get the facts. See for yourself.



The combination radiator and air conditioner takes up no more space in the rooms than a grille-enclosed radiator. Fits under average window. Can be recessed.

BURNHAM BOILER CORPORATION

Manufacturers of Heating Equipment Since 1873

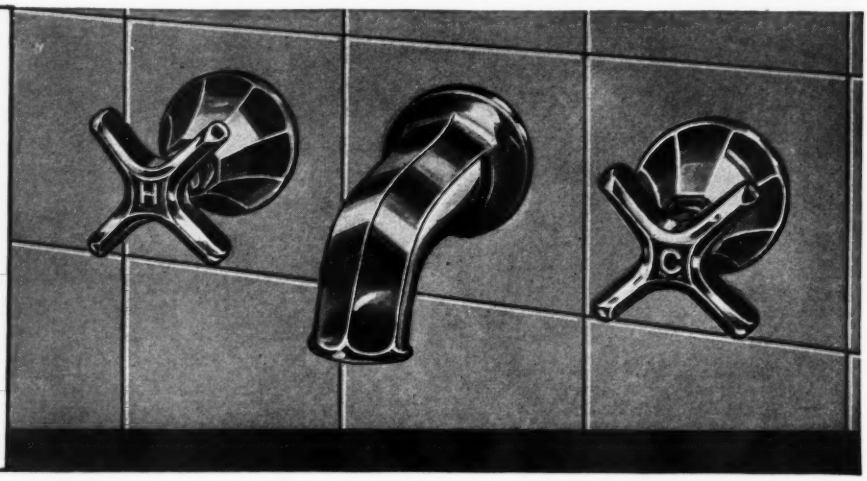
Irvington, New York **Zanesville, Ohio**

Export Department, 116 Broad Street, New York City

Burnham Boilers

OUTSTANDING features of SPEAKMAN SHOWERS and FIXTURES

1—*Attractive designs*
2—*Renewable valve seats*
3—*Swivel discs*
4—*Long life washers*
5—*Monel Metal washer screws*
6—*All wearing parts renewable*
7—*Extra large waterway areas*
8—*Pressure-tested heavy brass castings*
9—*Precision workmanship*
10—*Durable, high lustre chromium plate finish*



YOUR CUSTOMER

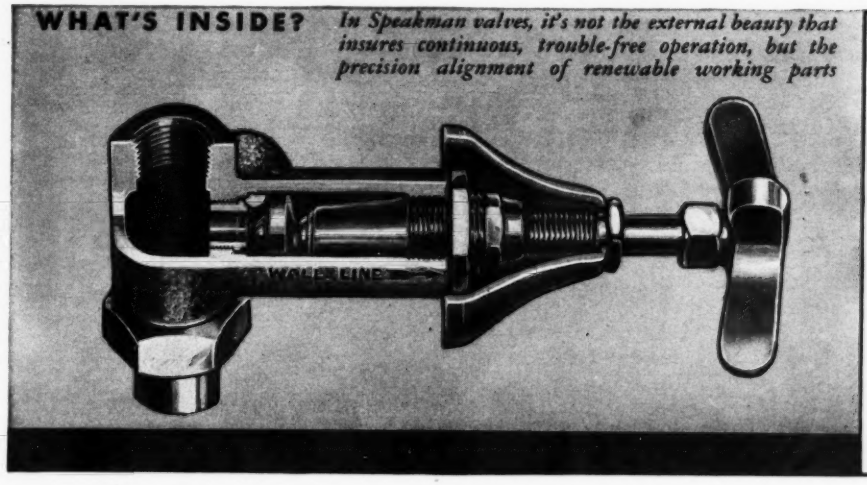
will never see these features

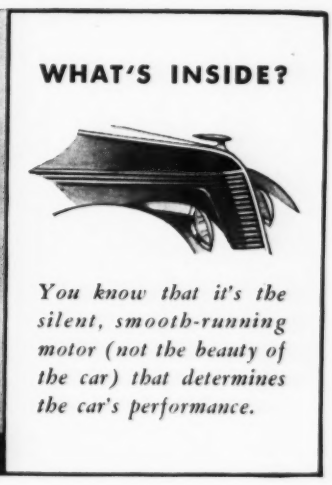
FEATURES like renewable valve seats, swivel discs with encased washers, monel metal washer screws, large waterway areas and accurate machining are Speakman features your customers will probably never see . . . yet they are but a few of the construction details that assure the continuous satisfactory service your customers expect you to provide.

Don't take a chance with fixtures of questionable quality – fixtures that make customers dissatisfied, and lose both business and good will for you. Remember, most customers blame the plumber when anything goes wrong . . . not the fixture. And remember, too, that many dissatisfied customers don't bother to register a complaint—they just call in another plumber.

Speakman Showers and Fixtures uphold the Speakman 68 year old reputation for high quality of both materials and workmanship. Each and every one is designed and constructed to give years of satisfactory service. Enlarged, unrestricted waterway areas assure full water supply in proportion to the pressure. Monel metal washer screws, swivel discs, rubber-fibre washers, and renewable valve seats, all combine to make Speakman valves the guardians of your reputation. When you install Speakman fixtures—whether they be showers, bath, lavatory, kitchen or laundry fixtures—you have the assurance of continued satisfactory operation, freedom from profitless callbacks—and satisfied customers—your greatest asset.

SPEAKMAN


WHAT'S INSIDE?
In Speakman valves, it's not the external beauty that insures continuous, trouble-free operation, but the precision alignment of renewable working parts


WHAT'S INSIDE?
You know that it's the silent, smooth-running motor (not the beauty of the car) that determines the car's performance.

Speakman national advertising in leading consumer and trade magazines, is telling the architect, the builder, building management and the buying public, about the importance of internal construction of Speakman plumbing fixtures—about Speakman's high quality standards—and about the wide price range of the complete Speakman line. The Anystream Self-Cleaning Shower Head, the Mixometer Valve, the Si-Flo Flush Valve, Graceline Sink Fixtures and many other Speakman leaders are being featured, month after month.

Let Speakman advertising be your advertising — your sales stimulator. Put it to work, building new sales for you. Display Speakman fixtures in your window, post the Speakman Dealer Sign prominently and get the full benefits. Write today for free literature that is building profits for alert plumbers.

SPEAKMAN COMPANY, WILMINGTON, DEL. *Quality fixtures since 1869*

SHOWERS • SHOWER HEADS • BATH FIXTURES • SI-FLO (SILENT) FLUSH VALVES
LAVATORY FIXTURES • SINK FIXTURES • INSTITUTIONAL AND INDUSTRIAL FIXTURES

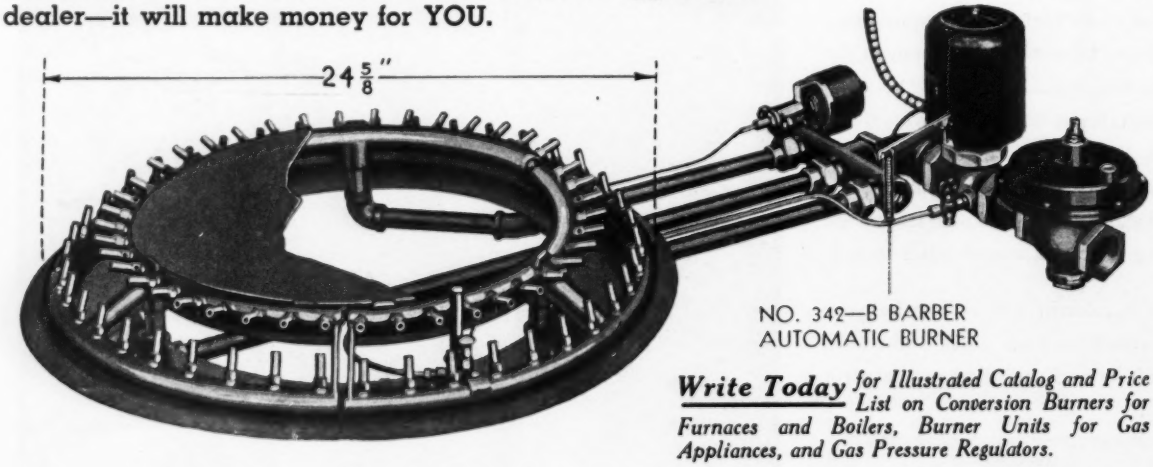
SHOWERS AND FIXTURES

When You Say:
BARBER BURNERS
You Say "Dependability"!

USED for heating thousands of homes and other buildings all over the country, under various fuel and climate conditions, in all types of furnaces and boilers—Barber Automatic Gas Conversion Burners have for many years taken first rank. Even a host of OLD-STYLE Barber Burners are today giving faithful, economical service. The latest models are built on the long famous Barber principle of combustion, which CANNOT be imitated, and include many refinements and improvements.

All Barber dealers are furnished with the utmost in cooperation and selling assistance. Proper protection is given to distributors and preferred dealers in restricted territories. By recommending and selling Barber Burners you assure to yourselves and your customers the solid satisfaction which accrues from a product of established merit. A Barber franchise is a valuable asset for ANY aggressive dealer—it will make money for YOU.

● The "B" Model shown here is built in eight different sizes to accommodate round grate diameters from 12" to 34". Models are also Tailor-made to SUIT and FIT grate dimensions of oblong furnaces and boilers, and to insure a "scrubbing" flame action against the side walls of firebox. Barber's 1900° Fahrenheit Flame Temperature produces the highest possible efficiency and economy. Equipped with Baltimore Safety Pilot for positive and accurate Safety Control. Listed in the A. G. A. Directory of Approved Appliances.



NO. 342—B BARBER
AUTOMATIC BURNER

Write Today *for Illustrated Catalog and Price List on Conversion Burners for Furnaces and Boilers, Burner Units for Gas Appliances, and Gas Pressure Regulators.*

THE BARBER GAS BURNER COMPANY

3704 Superior Avenue
Cleveland, Ohio

Address Michigan Inquiries to
The Barber Gas Burner Company of Michigan
4475 Cass Ave., Detroit, Michigan

BARBER BURNERS AND REGULATORS ARE DESIGNED FOR

Air Conditioning Equipment ● High Pressure Boilers (Tubular and Tubeless) ● Bakery Ovens ● Doughnut Kettles ● Metal Pots ● Garage Heaters ● Coffee Urns ● Hair Dryers ● Space Heaters ● Floor Furnaces ● Clothes Dryers ● Water Heaters ● Confectioners' Stoves ● Vulcanizing Machines ● Pressing Machine Boilers ● Japanning Ovens ● Core Ovens ● Banana Room Heaters and many other Appliances.

BARBER *Automatic* JET GAS BURNERS

FOR WARM AIR FURNACES, STEAM & HOT WATER BOILERS

You Can't Miss

● Naturally you want to stock and feature the air valve line this Fall which is *surest* to make money for you.

What features would you expect of such a line?

We think if you sat down and listed them you'd come right back to Dole Air & Vacuum Valves every time. This line has each and every selling point to a stronger degree than you will find elsewhere. Here they are; weigh them:

The line as a whole is easy to handle, conveniently numbered, plainly marked in a uniform manner, requiring a comparatively small stock to meet all requirements. The valves are made with great precision, each type doing the job to the customer's satisfaction, without complaints and returns. The valves are highly successful as *merchandise* because of their streamlined appearance, their prize winning carton design, and their background of advertising to your customers.* Topping all this, the margin of profit figured in for all who buy for resale is *liberal*.

In the long run a *good profit, an easy sale* and *fewest comebacks* is your idea of the right line—and ours.

The Dole Valve Company, 1901-1941 Carroll Avenue, Chicago, Illinois.

With DOLE Air and Vacuum Valves

Dole

THE LINE WITH SALES POWER!

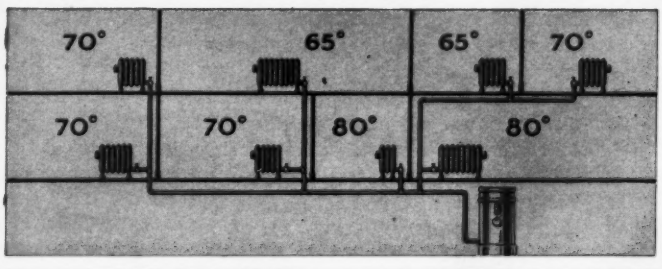
**Dole Valve advertisements are appearing currently in magazines reaching large groups of buyers—Better Homes & Gardens—National Real Estate Journal—Hotel Monthly—Hospital Topics—Building & Modernization as well as leading trade journals in the heating industry—better than a million and a half a month.*

YOU'RE SELLING

"Thermostat Control" on Every Radiator

WHEN YOU SELL THESE

NEW WARCO VALVES



10 FEATURES OF THE NEW WARCO ADJUSTABLE VALVES

1. Completely adjustable for any degree of venting.
2. Visual adjustment right on top of the valve.
3. Simple to operate—as easy as setting a thermostat.
4. Tamper-proof—can be set and "locked" in place.
5. No removable parts to mislay or become lost.
6. Controlled, balanced distribution of heat.
7. Reduced fuel costs, 25 to 35% less with Warco Vacuum Valves.
8. Priced to give a liberal margin of profit.
9. An exclusive Warco Feature.
10. Sold only through recognized Wholesalers of Heating and Plumbing Supplies.

WE'VE called it "Thermostat Control on *Every* Radiator" because the new Warco Adjustable Venting Valve is just that. It enables the user to regulate the amount of heat in any radiator in the system simply by adjusting the cap—as easy as setting a thermostat.

You're giving a new degree of heating satisfaction when you sell these Warco Valves with the new adjustable venting cap. And you're building customer confidence and repeat business.

Remember, there's a Warco Valve to meet the requirements of every one-pipe steam system. The Warco line includes adjustable and non-adjustable air and vacuum valves for radiators and mains. Write for descriptive illustrated catalog or ask your Wholesaler for complete information.

W. A. RUSSELL & COMPANY
GRAND CENTRAL TERMINAL BUILDING, NEW YORK, N. Y.
Better Valves Since 1890

WARCO VALVES Nationally Advertised in Saturday Evening Post and American Home Telling Your Customers about Warco Advantages.

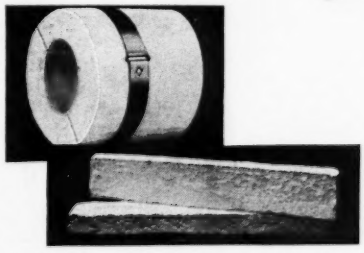
Warco
Air and Vacuum VALVES

An Invitation

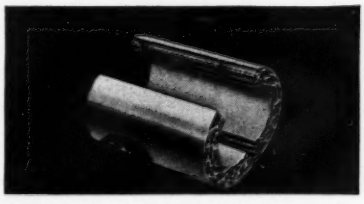
TO PLUMBING AND HEATING CONTRACTORS TO SEE THE NEW JOHNS-MANVILLE TALKING MOTION PICTURE...

"HEAT *and its control"*

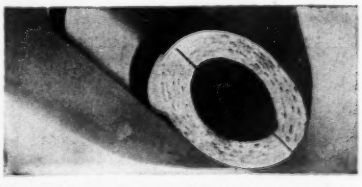
Save money for home owners and make extra profits with these J-M Insulations



J-M 85% Magnesia. Highest insulating value. Neat appearance. Permanent. Costs more, but worth more. And a handsome profit for you.



J-M Pre-Shrunk Asbestocel with new non-canvas finishes saves ⅓ labor cost. (Asbestos Paper Finish; also Aluminum Finish for de luxe jobs.)



J-M New Pre-Shrunk Wool Felt. Furnished either with canvas or with a handsome aluminum finish that ends pasting, saves ⅓ on labor.

J-M Asbestocel Range Boiler Jacket saves enough fuel in a few months to pay for itself. A sales story that lands many an extra $6 to $8 job.

DON'T miss this opportunity to see this fascinating talking motion picture—the first of its kind ever produced. In over 500 different scenes, it tells the story of HEAT from the earliest days down to present-day methods of heat control and conservation. It required over a year of tireless effort to make it what it is—the most comprehensive, interesting treatment of a subject that is of vital interest to you in the plumbing and heating industry!

During the next three months, this picture will be shown at over 150 group meetings of plumbing and heating contractors all over the country under the sponsorship of J-M wholesale distributors and various local associations of master plumbers.

These meetings promise to be the most interesting ever held in this industry—and they will be distinctly different. Of course, the motion picture, "HEAT," is only a part of the program. New J-M sales helps will be announced and there will be a real surprise in entertainment!

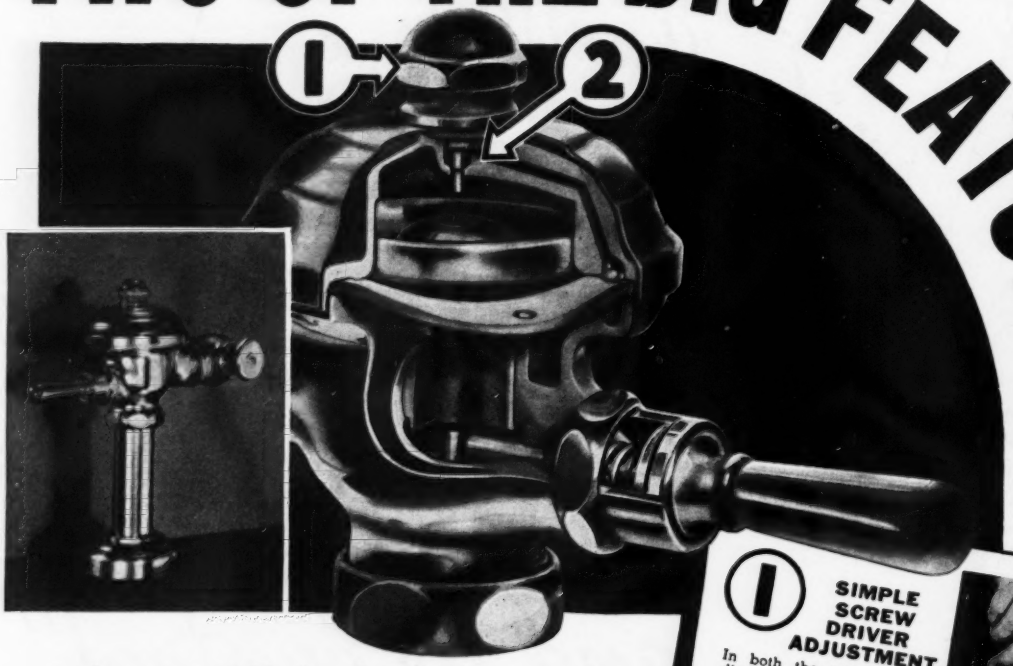
Ask your supply house when a meeting will be held in your city

JM JOHNS-MANVILLE

INSULATIONS FOR PLUMBING AND HEATING SYSTEMS

Headquarters: 22 East 40th Street, New York

TWO OF THE BIG FEATURES



-that will help you sell WATROUS FLUSH VALVES

EVERY building owner, manager, or superintendent can readily appreciate two of the important features of Watrous flush valves . . . and as for architects —they are going for Watrous flush valves in a big way.

The simple screw driver adjustment and the self cleaning by-pass illustrated opposite, are real, hard hitting selling points that will enable you to walk off with profitable flush valve orders . . . and you might be surprised to know how many orders *are* rolling in these days from master plumbers for Watrous flush valves.

All that you need to do to get this business is to keep your eyes and ears open. Every time you see an old fashioned, outmoded flush tank, why not sell a little modernization job with either the Watrous diaphragm or piston type valve? The installation will soon pay for itself in the water it saves.

Get set to pick up some side money on flush valves! Write for Catalog No. 433. It will give you complete information on Watrous flush valves and also on liquid soap dispensers—another item that master plumbers are handling on a profitable basis.

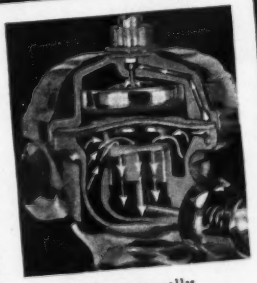
IMPERIAL BRASS MANUFACTURING CO.
1231 W. Harrison Street, Chicago
Offices in All Principal Cities

1 SIMPLE SCREW DRIVER ADJUSTMENT

In both the piston and diaphragm types of Watrous flush valves it is a very simple matter to adjust the length of the flush so that the least amount of water will be used for the particular condition. Simply remove the nut, take a screw driver and turn the adjustment screw and the flushing time can be lengthened or shortened as desired, without even shutting off the water or disturbing any connections.

2 SELF-CLEANING BY-PASS

This cut-away view shows a Watrous diaphragm valve in flushing position with the arrows indicating the direction of flow. Note the little tapered pin in the by-pass orifice. This is the patented self-cleaning feature. Every time the valve is operated this pin cleans the orifice and there is no possibility of its being clogged with scale, sand or mud. Note also the unusually large waterways that assure good flushing action even when the water pressure gets low.



Watrous *Flush Valves*

THEY PAY FOR THEMSELVES IN THE WATER THEY SAVE

KOHLER'S NEW *Free-standing Wellworth* IS THE BIGGEST CLOSET VALUE I'VE EVER OFFERED

Kohler Free-standing Wellworth. Easily and quickly installed. Tank rests on an extension of the bowl and is fastened to it with three bolts. The back of the tank is accessible for cleaning.

Jobbers! . . . Master Plumbers! . . . Home Owners! . . . They're all completely sold on Kohler's new Wellworth.

- **They like the free-standing feature that makes it easy to install.**
- **They like the trim, clean-cut lines with no hard-to-clean beads, ridges or grooves.**
- **They like the sensationally low price that puts the Wellworth within reach of every one.**

Sell the Wellworth for both replacement and new building . . . for apartments and modest homes.

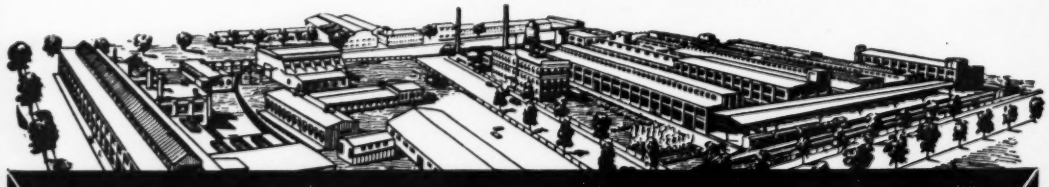
The Wellworth is one of the most popular numbers we've ever put out! Cash-in on its surge to popularity. Stock it. Stock other Kohler fixtures too—for bathroom and kitchen. The Kohler line is the quality line, the modern line, the complete line. Kohler Co. Founded 1873. Kohler, Wis. Shipping Point, Sheboygan, Wis.

USE KOHLER FITTINGS ON ALL KOHLER FIXTURES

KOHLER OF KOHLER

PLANNED PLUMBING AND HEATING

Make a new high for sales by lining up with Gilbarco



The Greatest Institution in the Field of Oil Heating — Air Conditioning

Look at these Five Vital Reasons Why Gilbarco is The Line of Greatest Sales —and Profits!

1. Easiest to Sell . . . Because Gilbarco is the outstanding value in the industry. Architects, builders, heating engineers and home owners recognize and acclaim its performance, dependability and economy of operation. It is the accepted leader in 37 countries all over the world.

2. More Sales-Building Features Than Any Other Burner . . . Gilbarco has everything! When you sell Gilbarco, you sell a complete piece of equipment with all the improvements and features which science and manufacturing skill have developed. There are no "extras" on Gilbarco. All features are standard equipment at no extra cost.

3. Lowest Service Cost . . . Actual figures in many territories prove Gilbarco requires less service than any other burner made. With Gilbarco, service does not eat up the profit.

4. Advertising and Sales Promotional Support . . . The most comprehensive national and localized plan in the industry . . . sales-minded, cooperative and complete.

5. The Company Behind Gilbarco . . . The oldest and largest company, with over 72 years experience, stands squarely behind every Gilbarco product. It will service anything it ever made. It has never had an orphan . . . and it never will.

WRITE FOR DETAILS OF THE GILBARCO DEALER PLAN TODAY

GILBARCO FLEXIBLE FLAME OIL BURNER. A world leader in efficiency, dependability and economical operation. Five models.

GILBARCO AUTOMATIC BOILER UNIT. Compact, beautiful and efficient. Eight models to meet all heating requirements.

GILBARCO CONDITIONED WARM AIR UNIT. Heats, cleans, humidifies and circulates a continuous flow of perfect air. Nine models.

GILBERT & BARKER MANUFACTURING CO., Springfield, Mass. • Toronto, Ontario, Canada

"ALWAYS OUT IN FRONT"

that is Man O' War's tradition—the result of Perfect Performance.

And—certainly Performance Alone placed Vent-Rites where they are today—leading the field—the preferred Air Valves of thousands of Heating Contractors who use them exclusively on every job.

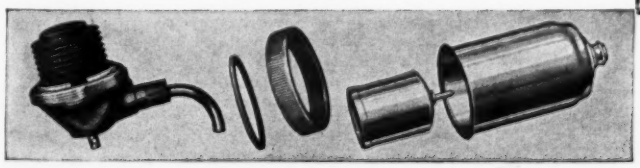
This preference for Vent-Rites is logical because Vent-Rites actually do "Balance" the toughest one-pipe steam jobs and insure the uniform transfer of heat to all radiators . . . regardless of size, distance from boiler or pressure carried.

A few exclusive Vent-Rite features which insure Perfect Performance, are:—1. Unlimited selection of venting rates up to the wide open diameter of a $\frac{1}{16}$" hole. 2. Tamper Proof adjustment—out of sight. 3. Adjustment, once set by the heating contractor—remains set. 4. Take-apart construction for thorough cleaning when necessary.

From these facts it is apparent that with Vent-Rites you get more for your money and can give your customers more for their's . . . not only in Fuel Economy but in Greater Heating Comfort.

There's a complete line of Vent-Rites for every Venting Requirement. Install them wherever venting valves are required for the Maximum Heat they deliver—for the satisfaction and profit they bring you.

In last month's publications we expressed our appreciation for the hearty support the trade has accorded our efforts to keep the sale of Vent-Rites in legitimate trade channels and out of the hands of Chain and Hardware Stores, D.T.U.'s and Mail Order Houses. We shall continue to enforce this strict sales policy to the utmost limit of our ability and resources.



ONLY VENT-RITES CAN BE TAKEN APART FOR THOROUGH CLEANING.

VENT-RITE AIR VALVES

Alone—today—Vent-Rite is advocating the use of the

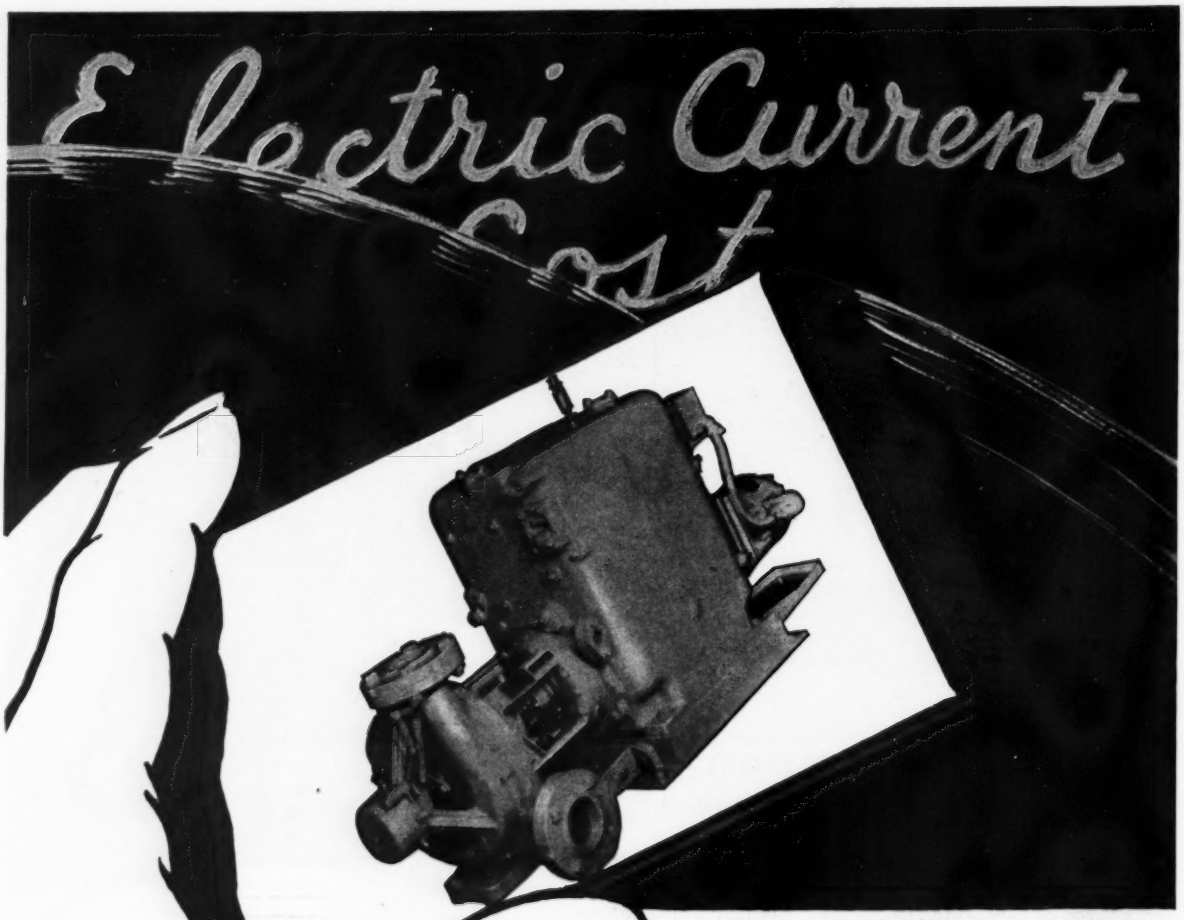
VENT-RITE BALANCER

on all automatically fired, one-pipe steam jobs equipped with Vacuum Valves (regardless of make).

If you have not already installed one of these Balancers on a troublesome one-pipe job, equipped with vacuum valves of any kind, don't waste time—install one at once and note the tremendous improvement in Performance.

Send today for your copy of "Revolutionizing Steam Heating" with the Vent-Rite Balancer.

ANDERSON PRODUCTS
Incorporated
CAMBRIDGE, MASSACHUSETTS



ERASE THIS COST!

NASH VAPOR TURBINE HEATING PUMPS REQUIRE NO ELECTRIC CURRENT.

The Nash Vapor Turbine Return Line Vacuum Heating Pump requires no electric current, eliminating the one biggest heating pump operating expense item. The motive power is a special turbine operating on steam direct from the heating system. Steam used is returned to the system for heating, with little loss.

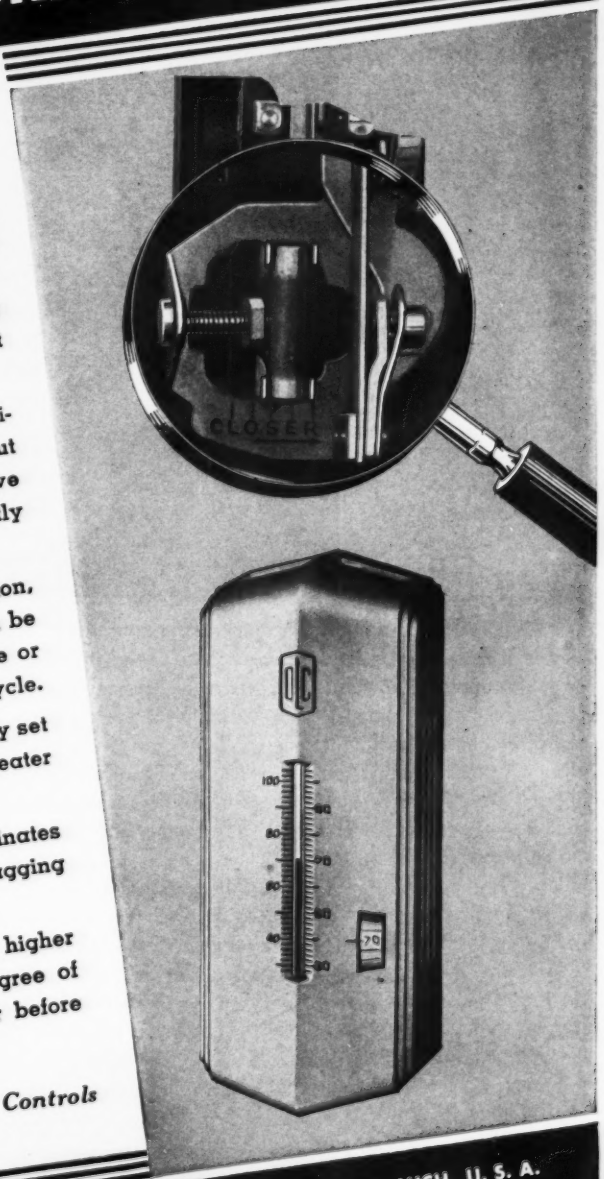
But the important saving promoted by the Nash Vapor Turbine is in the system itself, for this is the only heating pump that can operate continuously with economy. This uniform circulation means a big saving in steam.

This pump has one moving part, no internal wearing parts, and no internal lubrication. Compact and quiet, it will give long service at low maintenance cost. Send for free Bulletin No. 246.

THE NASH ENGINEERING COMPANY

SOUTH NORWALK, CONNECTICUT, U. S. A.

THE *two-eleven* SETS A HIGHER STANDARD OF PERFORMANCE



In developing the new "Genuine Detroit" Thermostat, the engineers have done an outstanding job . . . one in fact, that raises the accepted standards of thermostatic control. Taking the preheater element out of the "load" circuit and putting it in parallel with the "load" has revealed important advantages.

For instance, this change makes one thermostat universal for any load using a 20-25 volt circuit, without changes in assembly. Changes in "load" circuit have no effect on the preheater element and consequently no effect on the performance of the thermostat.

Accurate control for any type of building construction, any type of heating plant and any type of fuel can be secured by simply moving the preheater to increase or decrease the length and frequency of the heating cycle.

The air gap at the contacts can now be permanently set at the factory to respond best to the effect of the heater element. Thereafter it need not be changed.

Another seemingly simple engineering revision eliminates the possibility of the indoor temperature curve sagging in very cold weather.

All the above features combine to provide a new higher standard of performance . . . to accomplish a degree of precision in temperature regulation that has never before been available in a commercial thermostat.

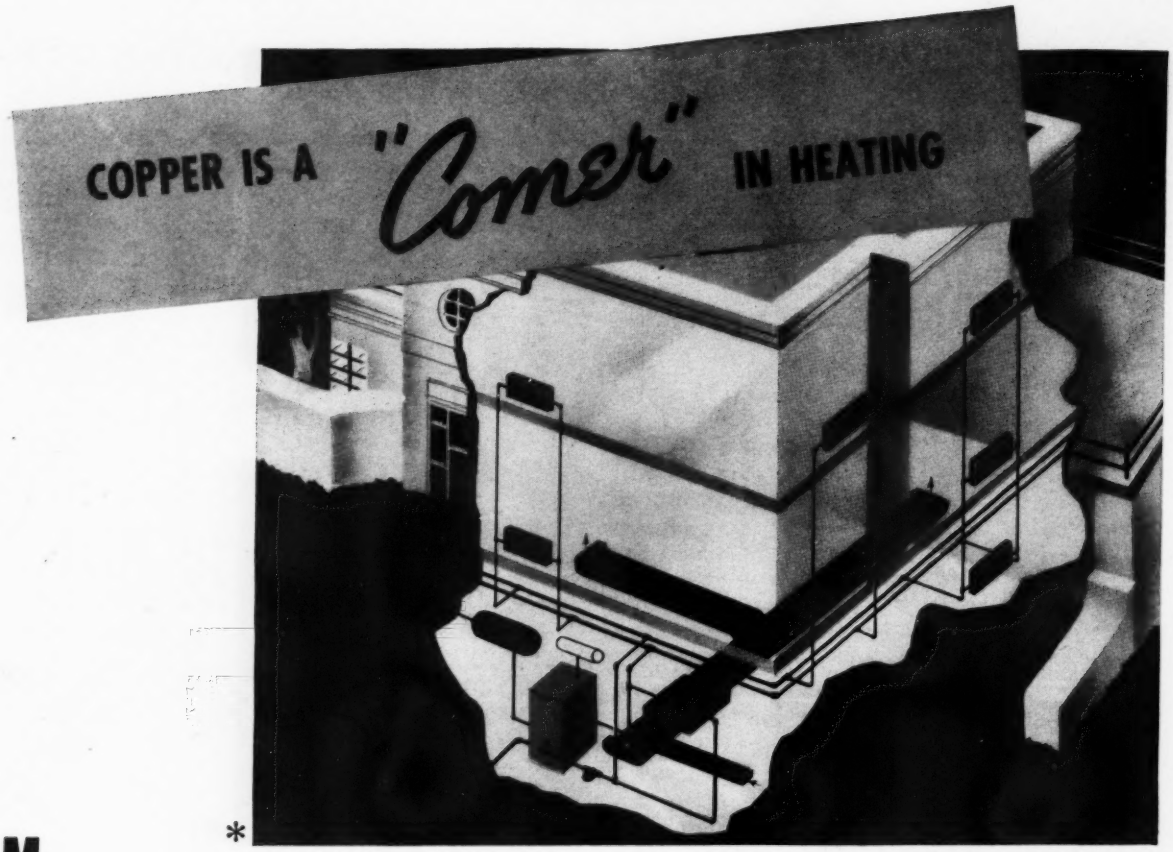
Specify "Genuine Detroit" Controls

DETROIT LUBRICATOR COMPANY DETROIT, MICH. U. S. A. 5900 Trumbull Avenue

NEW YORK, N. Y.—40 West 40th St. • CHICAGO, ILL.—816 S. Michigan Ave.

DIVISION OF AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

Canadian Representative—RAILWAY AND ENGINEERING SPECIALTIES LIMITED, Montreal, Toronto, Winnipeg



*

Making money as a plumbing and heating contractor is largely a matter of aggressive merchandising—giving the prospect something new, modern, better. Right now copper is a "comer" in heating. You can get more money, earn better profits, and build more good will by boosting Copper Water Tube for complete piping jobs—hot and cold water lines; heating lines; fuel oil lines from tank to burner; air conditioning cooling water and refrigerant lines, and humidifier spray feeds.

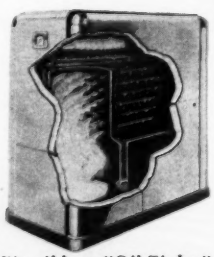
Revere Copper Water Tube for all of these services is being sold on the basis of lifetime service with less trouble and upkeep. Emphasize the facts that Revere Copper Water Tube is rustproof, has smooth inside surfaces that resist clogging and assure full flow at all times, and compared to rustable materials has less heat loss and requires less expense for pipe covering.

Revere Copper Water Tube jobs are attractive in appearance, add to resale value of any home, and are a sound, permanent investment paying dividends in comfort and in reduced maintenance expense. Magazines and newspapers are actively educating the public on the merits of copper tube. You can share in the money-making opportunities created by this publicity. Learn about Revere Copper Water Tube now by writing for the 40-page Revere Copper Water Tube Book. For free copy write to our Executive Offices, 230 Park Avenue, New York City.

☆

Fitzgibbons "Tanksaver"

Fitzgibbons "Tankheater"



Fitzgibbons "Oil-Eighty" Copper-Steel Boiler

The Fitzgibbons Boiler Company Inc. says: "The Revere Copper Water Tube we have used for our 'tank saver' and 'tank heater' coils (shown above) has been consistently high in quality." This *reliability* of Revere Copper Water Tube is important to every contractor in choosing copper tube for any job.

☆

* Illustration showing how copper is used in a modern forced circulation hot water heating and air conditioning system, is taken from the new Revere booklet, "THE HOUSE YOU LIVE IN." For free copy write our Executive Offices, 230 Park Avenue, New York City.

Revere
FOUNDED BY PAUL REVERE 1801
Copper *and* Brass
INCORPORATED
EXECUTIVE OFFICES: 230 PARK AVE., N. Y. C.

"Did you say unit heaters?"

"No, I said MODINES"

● All unit heaters are not Modines. But, there *are* more Modines being sold than any other make. Modine users are the most satisfied unit heater users in America. For Modines give them exclusive advantages that simply do not exist in other unit heaters.

Superior heating performance, that's to be expected of Modines. Greater fuel savings, naturally. Lower installation costs, of course. . Proved by thousands of industrial and commercial applications. The result of Modine advanced design and exclusive Modine construction features. Let's look at Modine *from the inside* . . . will you turn the page?

TO GET THIS FREE BOOK

FILL IN THE COUPON . . . DETACH AND MAIL TO MODINE MANUFACTURING COMPANY, 1722 RACINE ST., RACINE, WIS.

This book tells how Modine better heating steps up production, improves working conditions in factories; assures customer and employee comfort in stores . . . saves 13½ to 25% and more in fuel costs alone. Complete construction, operation and application details. Mailed without cost or obligation.

Individual .....

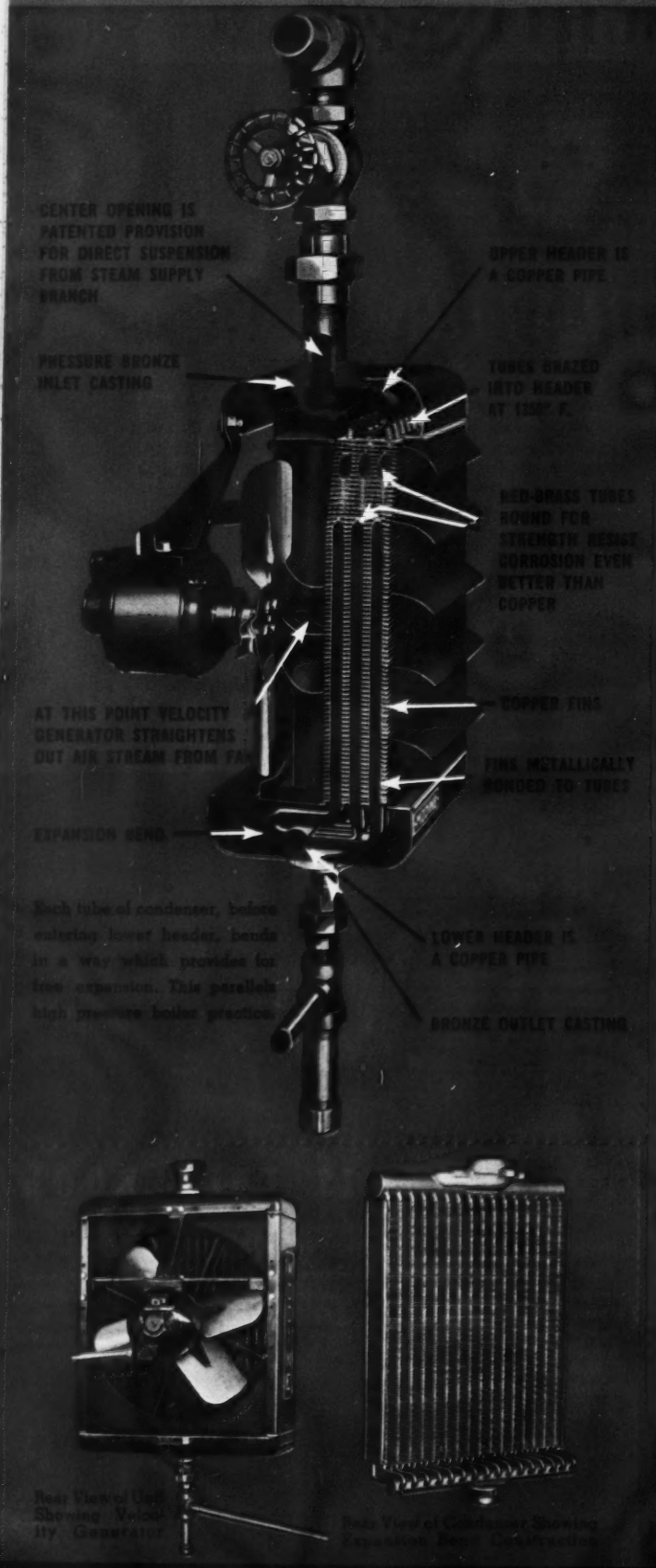
Firm .....

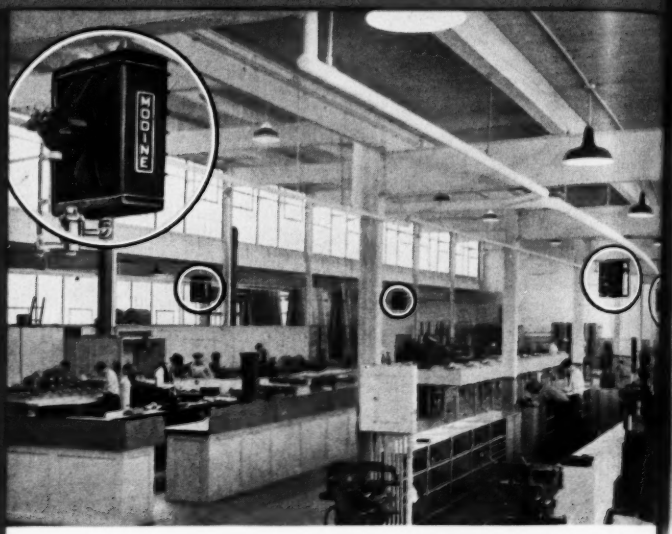
Street and Number .....

City ..... State .....

and on the next page . . . gentlemen ⟶

You get more from MODINE *than any other Unit Heater*


CENTER OPENING IS PATENTED PROVISION FOR DIRECT SUSPENSION FROM STEAM SUPPLY BRANCH
UPPER HEADER IS A COPPER PIPE
PRESSURE BRONZE INLET CASTING
TUBES BRAZED INTO HEADER AT 1350° F.
RED-BRASS TUBES ROUND FOR STRENGTH RESIST CORROSION EVEN BETTER THAN COPPER
COPPER FINS
AT THIS POINT VELOCITY GENERATOR STRAIGHTENS OUT AIR STREAM FROM FA
FINS METALLICALLY BONDED TO TUBES
EXPANSION BEND
Each tube of condenser, before entering lower header, bends in a way which provides for free expansion. This parallels high pressure boiler practice.
LOWER HEADER IS A COPPER PIPE
BRONZE OUTLET CASTING
Rear View of Unit Showing Velocity Generator
Rear View of Condenser Showing Expansion Bend Construction



● **The suspended type unit heater was pioneered by Modine. No other unit heater manufacturer has gone so far with advanced design and greater structural strength.**

Inlet to outlet, the Modine condenser is *all copper and copper alloy*. All steam-carrying passages are *cylindrical* for excess strength—and cannot leak under high pressures or temperatures. Every condenser tube can *individually* contract or expand with knee-joint movement—the now famous *expansion bend* recently developed by Modine and not to be found in other unit heaters.

Metallic bonding prevents the possibility of reduction of heat transfer from tubes to fins.

Modines give a greater "heat throw" without increased power requirements because of the *velocity generators*, exclusive with Modine.

Suspended directly from the steam line, without brackets, rods or straps...a Modine *patented* feature...Modines cost less to install.

When you get so much more from Modines, why compromise on anything less. Don't accept any substitute in unit heaters . . . *insist on Modines.*

FOR COPY OF FREE BOOK
Fill Out Other Side, Detach and Mail

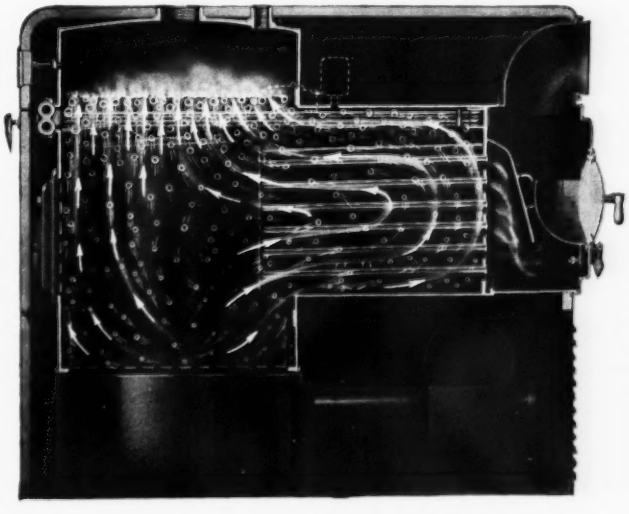
The three C's of FITZGIBBONS OIL-EIGHTY superiority

CONSTRUCTION
COMBUSTION
CIRCULATION #3

The "three C's" constitute a yard stick for measuring the worth of any boiler, because every feature contributing to performance, durability and convenience, comes under one or the other of these three general heads. This is the last of a series applying the yard stick to the Fitzgibbons OIL-EIGHTY Automatic. It deals with CIRCULATION. No. 1, CONSTRUCTION, appeared in August. No. 2, COMBUSTION, appeared in September. The complete series makes clear the superiority of this outstanding boiler — a superiority evidenced by the fact that in 1936, *35% of the steel boiler sales of dealers in 42 key markets were* OIL-EIGHTYS.

CIRCULATION

- The features of OIL-EIGHTY design which assure complete combustion of the oil vapor, making available all of the heat energy in the fuel, were presented in the preceding installment of this series. The final factor in the superiority of the OIL-EIGHTY is its ability to pick up the heat energy and transfer it to the boiler water as fast as it is liberated.
- Being built of steel, the plates and tubes are of a uniform thickness assuring even heat absorption at all locations. But more than that —
- The exceptional speed and efficiency of heat transfer in the OIL-EIGHTY is due to the powerful water circulation — a circulation that moves at *the speed of the Niagara rapids.*
- This circulation is due to the distinctive design of the OIL-EIGHTY. Look at the cross-section view. Note the combustion chamber entirely surrounded by water, providing a large percentage of valuable radiant water heating surface. Note that the outlet to the heating system is just above this part of the boiler where the temperature is highest.
- With this arrangement it takes only a few minutes of burner operation to create the temperature difference that literally pulls the water from the tube shell along the many tubes rather than up and around them, "scrubbing" their surfaces of heat on all sides, as fast as they absorb it. Thus the tubes give up about 100° of heat per inch of flue travel — result, gas temperature under 400° F.
- For the same reason that water can be boiled faster in many small containers than in a few large ones, the Fitzgibbons principle of *many* small tubes aids materially in producing the exceptional speed of heat transfer in the OIL-EIGHTY. It brings more of the water in *direct* contact with heating surface.
- Note also the design and location of the domestic hot water coils. Submerged just below the water line, *they get the benefit, throughout their entire length, of the highest boiler water temperature.*



SELL

this outstanding boiler with your burner . . .

Write for the OIL-EIGHTY Catalog and details about the Fitzgibbons Authorized Dealer Franchise. You'll find it easy and pleasant to do business with Fitzgibbons.

MOST ECONOMICAL IN FUEL — 1934 — THE FITZGIBBONS BOILER

Fitzgibbons Boiler Company, Inc.

General Offices: ARCHITECTS BLDG., 101 PARK AVE., NEW YORK, N. Y.

Works: OSWEGO, N. Y.

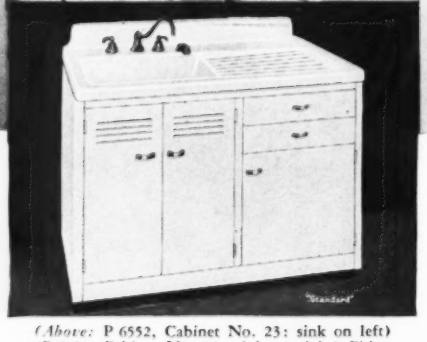
Branches and Representatives in Principal Cities

Distributed in Canada by Fess Oil Burners of Canada, Ltd., Toronto and Montreal

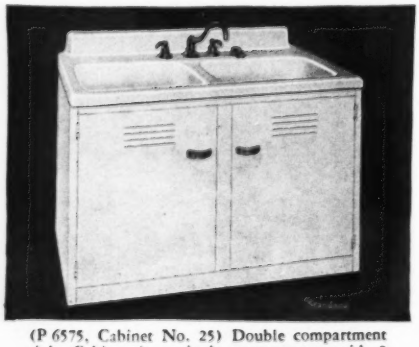
OBI

NOW IT'S *Fun to work* IN THE KITCHEN

(*Above:* Hostess P 6535, Cabinet No. 20)



(Above: P 6552, Cabinet No. 23: sink on left) (P 6550, Cabinet No. 22: sink on right) Either cabinet has two drawers, one large compartment, one smaller compartment.



(P 6575, Cabinet No. 25) Double compartment sink. Cabinet is a single compartment with 2 doors. All sinks are 36" floor to rim.

with the

NEW "Standard" HOSTESS SINK

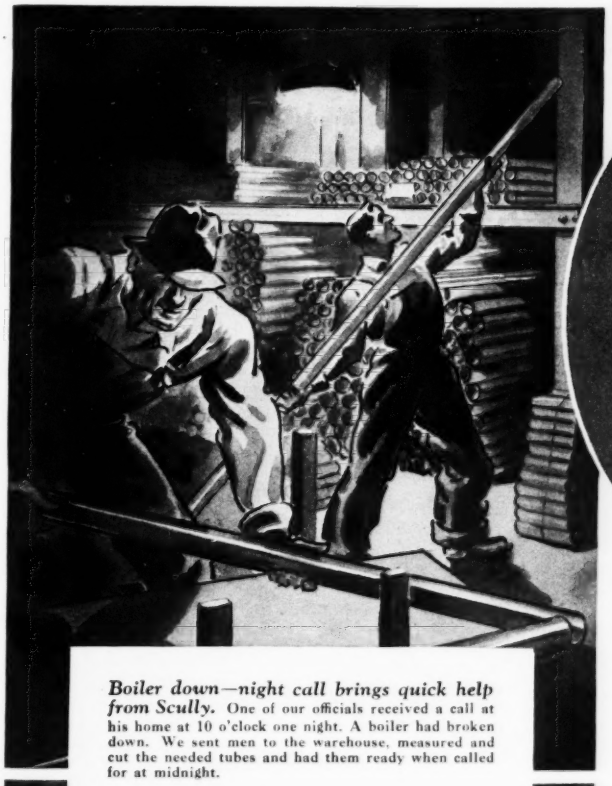
TELL women they can exchange hard work for fun with a new "Standard" Hostess Sink — now available in four popular models. The 8" deep sink which can be used as a dish pan — the handy shelf — the swinging spout with transfer valve — the spray hose, convenient, yet out of the way — the spacious room for kitchen utensils — all help turn her work into fun.

The "Standard" Hostess Sink is tailored to tie in with any standardized wall cabinets . . . to fit any kitchen . . . any budget. It is available in white and many beautiful colors. Feature this sink now for Fall sales.

Standard Sanitary Mfg. Co.
PITTSBURGH, PA.

Division of AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

Copyright September 1937, Standard Sanitary Mfg. Co.



Boiler down—night call brings quick help from Scully. One of our officials received a call at his home at 10 o'clock one night. A boiler had broken down. We sent men to the warehouse, measured and cut the needed tubes and had them ready when called for at midnight.

"We must have it in the morning." Another emergency call came to us at 9 o'clock one night. Some Stainless Steel was needed for a rush job. We cut and delivered the order early the next morning.

IN EMERGENCIES TOO —call Scully

WHEN an emergency calls for steel or steel products in a hurry, prompt service will save you many dollars. When such an occasion arises, call Scully. We will meet that emergency.

And call Scully, too, for your regular requirements. We have huge stocks of steel, steel products, copper and brass in eight conveniently located warehouses. Try us.

Phone, write or wire the Scully warehouse nearest you. And send for our handy, complete Stock List and Reference Book. It's free, of course.

YOU'LL LIKE *Scully Service*

SCULLY STEEL PRODUCTS CO.

Warehouses at

CHICAGO • BOSTON • PITTSBURGH • NEWARK, N. J. • ST. LOUIS
BALTIMORE • ST. PAUL • CLEVELAND

UNITED STATES STEEL

THE *first* LARGE PORT
FAST-VENTING SYSTEM

The new Ideal Fast-Venting System for one pipe steam jobs has once and for all silenced the old familiar complaint of "the cold radiator in that north bedroom". It is a new achievement based on large ports and fast venting at very low pressures. It includes the Arco-Detroit Multiport for radiators and the Arco-Detroit Hurivent for mains.

AUTOMATIC MODULATOR PATENTED

Here are the outstanding advantages:

1. Multiport venting rate more than 3 times that of average air valve.
2. Hurivent venting rate more than 22 times as great as that of the average vent valve.
3. Patented Automatic Modulator prevents too rapid venting at normal pressures—no excessive condensation, no water hammer, no short circuiting of steam
4. Ports readily adjustable over wide range to balance venting.
5. Variation in port adjustment directly proportional to movement of adjusting arm.
6. Adjustment can be locked to prevent tampering.
7. Multiport silent in operation—no sizzling—muffling chamber stops hiss.
8. Establishes a completely new standard in air valve styling—lustrous black moulded jacket trimmed in brilliant chrome.

The Ideal Fast-Venting System is such a vast improvement over existing equipment that it should be included on all new work and used to replace the venting equipment on all old jobs—automatic as well as hand fired installations. The "Ideal Fast-Venting System" embodies the combined experience and facilities of the engineering and manufacturing staffs of American Radiator Company and Detroit Lubricator Company—Developers of the famous Airid, Vac-Airid and Variport lines, the former as National Distributors and the latter as makers. For sale by all leading Wholesalers.

DETROIT LUBRICATOR COMPANY
5900 TRUMBULL AVENUE • DETROIT, MICHIGAN, U. S. A.

Division of
AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

Every OXWELD welding accessory is important enough to be made with *Precision*

THERE are three reasons why every welding accessory trade-marked Oxweld* must meet the high standards of quality which have been set by the world's largest manufacturer of oxy-acetylene welding and cutting equipment:

1. Efficient accessories and supplies insure protection for the operator.
2. Comfortable and convenient accessories prevent petty annoyances and help improve the quality of the operator's work.
3. The cost of the accessory is immaterial when compared with its contribution to the lower cost of welding.

Everything for oxy-acetylene welding and cutting that is marked "Oxweld"—including flux, carbon rods, plates and paste, gloves and mittens, goggles and spectacles, lenses, hose, couplings, clamps, ferrules and splices, friction lighters, wire brushes, asbestos paper—is a quality product that you can select and use with complete confidence.

Linde offices in principal cities and jobbers throughout the country can supply you with Oxweld accessories. Write for full information and prices. The Linde Air Products Company, Unit of Union Carbide and Carbon Corporation, New York and principal cities.

*Trade-Mark

Everything for Oxy-Acetylene Welding and Cutting

LINDE OXYGEN • PREST-O-LITE ACETYLENE • OXWELD APPARATUS AND SUPPLIES FROM UCC LINDE UNION CARBIDE

"The complete line of Chase Fittings gives you a wide selection to use for any copper tube requirement."—Irving Kominsky, Ross & Kominsky Plumbing & Heating Company, Chicago, Illinois.

MAMMOTH OR MIDGET . . . CHASE MAKES IT!

To save you time and trouble, Chase *has* every needed size of copper tube fitting—from a mammoth 12-inch to a midget ⅛-inch. All sizes quickly delivered to your jobber from one of Chase's eighteen convenient warehouses or mills.

CHASE

Brass Pipe
Copper Tube
Sweat & Flared Fittings
Plumbing Supplies
Copper Roofing Products

CHASE BRASS & COPPER CO.
—Incorporated—
Subsidiary of Kennecott Copper Corporation
Waterbury Connecticut

CHASE
BRASS AND COPPER

CHASE

PENNIES PAY FOR REPAIRS

if the flush valves are "Sloan"

Let's look at the record: On May 15 Hugo J. Stadick, Chief Engineer of the Loretto Hospital, New Ulm, Minn., wrote us "We have 22 valves installed an average time of 6 years and the cost per valve for the 6 year period has been 8c for parts."

Walter W. Bird, Chief Engineer of the Stevens Hotel, Chicago, the largest in the world, reports the cost per valve for maintaining 3600 valves for seven years to be 1½c a year.

At the State Hospital, Warm Springs, Montana, a total of $2 has been spent on repair parts for 100 valves in eight years, or a quarter of a cent a year per valve!

The Oxford Hotel, Denver, replaced other flush valves with Sloan in 1931. Nothing has been spent for upkeep since that time.

At 35 E. Wacker Drive in Chicago, an office building, the valves have been touched only once in eight years.

Kelly Brothers Company of Minneapolis report no repair cost whatever on their valves installed in December, 1930.

These reports are typical of the comments of Sloan users who keep a record of their maintenance expense. If you are not now enjoying the low-cost performance of Sloan Flush Valves, you can modernize your equipment at a substantial profit.

SLOAN VALVE CO., CHICAGO

Manufacturers of flush valves exclusively

"I greatly enjoy DOMESTIC ENGINEERING and find it very beneficial. Am anxiously awaiting the next issue."

V. L. F.,
Far Rockaway,
N. Y.

Between Ourselves

Ideas and Ideals . . . which make up . . . this Issue . . .

This Month's Cover

Those in our industry are many sided business men. They combine, in at one and the same time, aspects of selling, management, purchasing, personnel work and all the other factors which enter into business activity. While at first glance, recreation may not appear as an aspect of business activity, there is this angle to it—relaxation is an essential to the pace demanded by present day business.

On this month's cover is a picture of Philip S. Bailey, director of the National Assn. of Master Plumbers. Mr. Bailey is shown on the deck of his sailboat in the harbor at Scituate, Massachusetts.

Reference Data Sheets

As has been the case for many months past, the editorial columns of this issue present Heating Reference Data Sheets. In the publication of these tables, the primary purpose has been to make available information which would be both practical and useful to all those connected with heating work. Several months ago a supplementary page of text material was added to the tables to expand further their usefulness.

This series of tables will be continued until material on all phases of the subject has been presented. Those in the industry have evidenced continuing interest in all of the several aspects of their profession. Plumbing and heating do not stand still; living standards, ideas on comfort, even views on necessities are in a constant state of change, and plumbing and heating men and equipment not only keep pace, but stay in advance of these trends.

The necessities of today were the luxuries of yesterday, the luxuries of today will be the necessities of tomorrow. This is accomplished by constant improvement in all products and services. Consumers have come to regard such improved products and services, which day by day raise living standards and comfort levels, somewhat as a matter of course. In so doing they have added pressure to the task of those who supply the products and services, but the men of our industry have not been found wanting in this respect. Our industry has in the past, and will continue in the future, a practice of instigating progress rather than waiting for it. This is the reason for interest in Heating Reference Data Sheets.

Fire Prevention Week

Elsewhere in this issue is an article on National Fire Prevention Week, which takes place this year from October 3 to 9. This particular week offers an excellent merchandising opportunity to contractor-dealers. Merchandising authorities have stated many times that a large volume of sales can be traced to sales tie-ins with special events. The United States Department of Commerce recently has issued a bulletin covering the rapid rise and results of special event merchandising.

During special events such as Fire Prevention Week, public attention is drawn to a fine focus by the specialized advertising and volume of publicity which are sent out. Fire Prevention Week naturally commands additional attention in that it concerns a subject which is important both from a financial and a human aspect.

There are, too, specialized features of the week in question which lend themselves admirably to merchandising efforts by contractor-dealers. Defective heating systems have been called the source of a large portion of America's tremendous annual fire loss. Here the services of the plumbing and heating contractor-dealer are shown in the light of valuable protection. In rural and small town areas, water supply systems of adequate size are stressed by national fire protection agencies as a necessity. And here the products of the plumbing and heating contractor-dealer are advertised in the most favorable light.

There is still an additional aspect which makes Fire Protection Week a natural sales adjunct. The event receives widespread publicity from many national agencies such as schools, insurance companies, clubs and safety councils. All this publicity does much to create a market. In one respect it does much to create a specialized market, one to which the products and services of our industry are particularly suited.

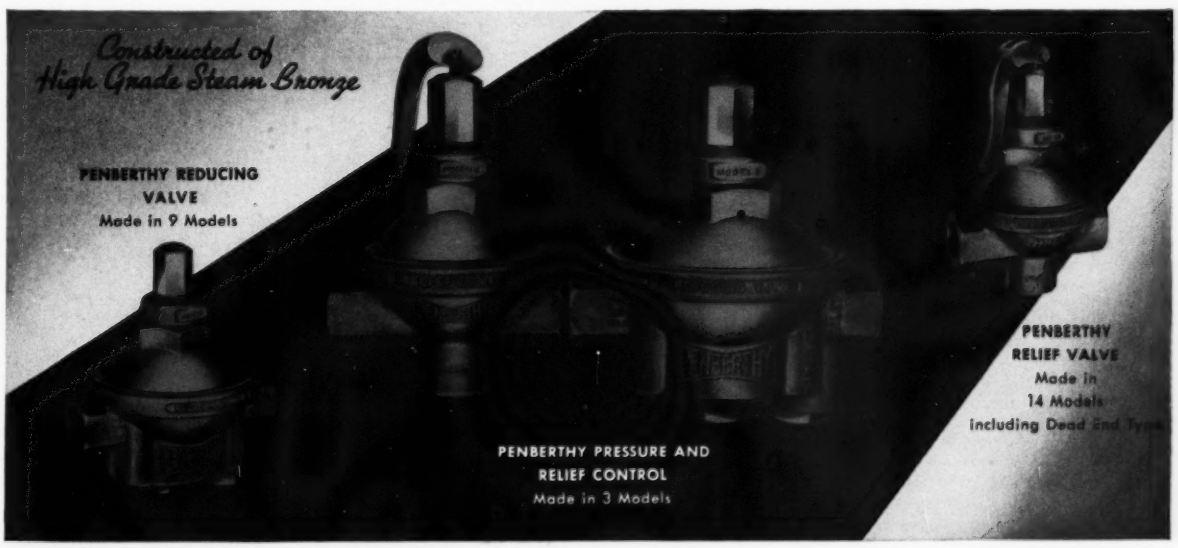
Your Editor

Thrifty

BOTH you and your customer benefit when you sell him one of the units shown above to keep his basement free from seepage water—or the specialties shown below to modernize his hot water heating plant. Your customer gets a superior product at an attractive price and you get a substantial profit from a line that is easy to sell and stays sold.

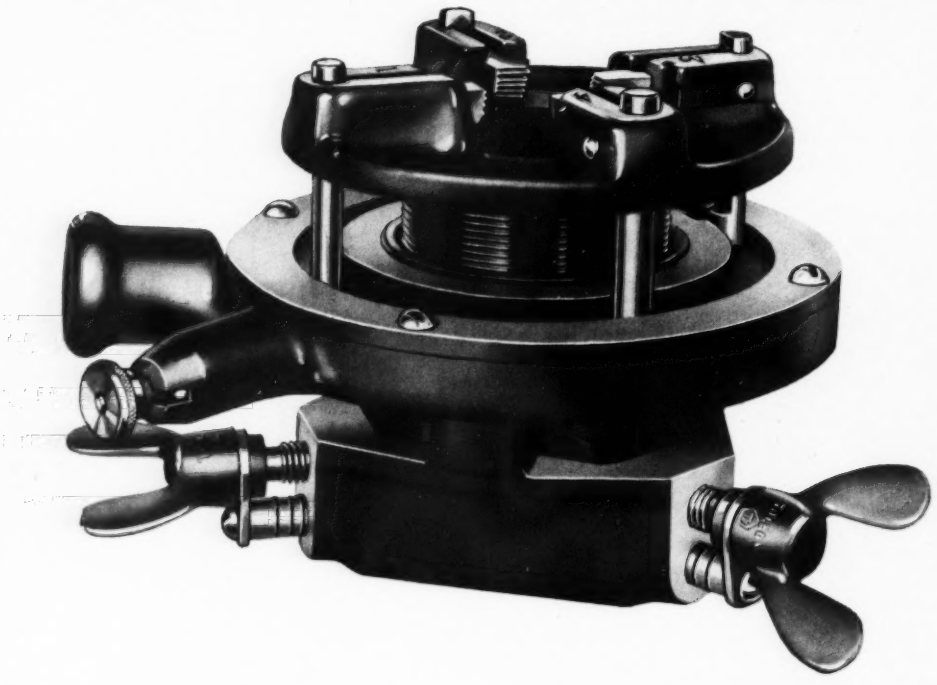
Penberthy Products are carried in stock by jobbers everywhere.

PENBERTHY HOT WATER HEATING SPECIALTIES



PENBERTHY INJECTOR COMPANY

Manufacturers of QUALITY PRODUCTS *Since 1886*
DETROIT, MICHIGAN • *Canadian Plant,* Windsor, Ont.



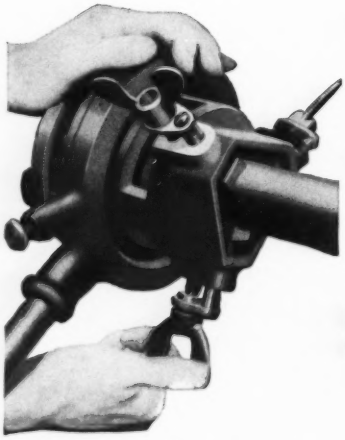
THE FINEST 1″ TO 2″ THREADER—

—for threading iron, steel or brass pipe.

A few of its many superior features are:

1. Better work holder. Three chuck jaws 1¾″ wide clamp tool rigidly, accurately to the pipe even though the pipe is cut off crooked. Large wing-head thumb screws provide better grip.
2. Sturdier construction. Stronger work holder. Hardened steel taper pins. No soft metal parts to wear. Longer taper pin bearings—no danger of working loose or stretching. No skimping in weight to weaken tool and shorten its length of service.
3. Better balance. Ratchet handle near center of tool, making a properly balanced tool as it is put on the pipe. Easier handling.

Specify "TOLEDO" No. 1BR and know the difference.



The large wing-head thumb screws and broad-faced chuck jaws, assure easy, accurate setting. Pipe holder will pass a 2-in. coupling allowing the threading of short nipples on all sizes.

USER'S NET PRICE—
No. 1BR—1″ TO 2″ COMPLETE . . $15.00
F. O. B. TOLEDO OR DISTRIBUTOR'S STOCK

"TOLEDO"
TRADE-MARK REGISTERED U.S. PAT. OFFICE
THE LEADER SINCE 1901

Three of these broad-faced chuck jaws and set screws on each threader.

A separate set of dies for each size pipe, assures accurate standard taper threads.

Brass pipe is threaded perfectly with these dies and the No. 1BR or No. 1B.

THE TOLEDO PIPE THREADING MACHINE COMPANY
TOLEDO, OHIO **NEW YORK OFFICE AND DISPLAY, 72 LAFAYETTE STREET**

OUR INDUSTRY

October, 1937

Water Systems—Sales Opportunities

BECAUSE the water supply, whether it be private or municipal, forms the very heart of any plumbing or radiator heating system, therefore, conditions which affect it are of wide significance. All signs point to a bright future for the sale of water systems during the balance of 1937. The factors which lend strength to this belief also indicate that the bright future will continue in coming years.

Reports from the Department of Commerce already have shown that domestic water systems gained 33 per cent for the first seven months of this year in comparison with the same period in 1936. The total number of units sold so far this year amounts to 120,685. This figure is close to the total for the entire year of 1929, and above the totals for both 1930 and 1935.

FARM PROSPERITY

Two principal reasons are behind the outstanding gains which have been registered by domestic water systems. The first such reason is the intensive electrification program which has gained impetus in recent months and is now being carried on in rural and small town areas. The second reason is that better and larger crops have been experienced this year with a resulting rise in farm income. Estimated 1937 farm income has been set by reliable sources at approximately $10,000,000,000. This extensive promotion of rural electrification already has, and will continue with increasing effect, materially to increase the market for domestic water systems and the installation of plumbing and heating equipment.

It has worked out in actual practice that the sale of a domestic water system is the sales lead to the installation of other plumbing and heating equipment. In this connection the statement has been made, "Follow the Wires to Increased Sales." There is a definite indication that rural electrification is spreading rapidly thus enlarging the market for plumbing and heating contractor-dealers. A report from the Edison Electric Institute has shown that at the present time there are 1,138,338 farms in the United States using electric service. In addition to this group, which constitutes a large mass market for plumbing and heating sales, there are 282,300 farms located within reasonable connecting distance to existing power lines. This group represents an additional market for water systems and for other plumbing and heating products.

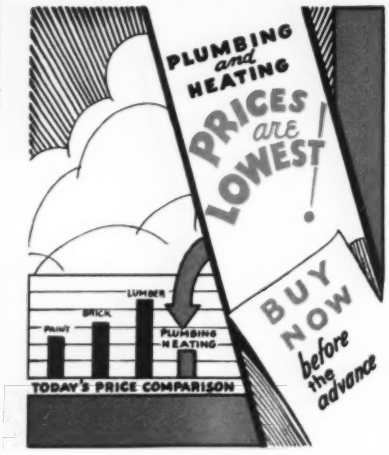
SALES PIONEERING

The situation which exists in regard to the domestic water systems market merely is a case in point of the merchandising opportunity available to contractor-dealers everywhere. The days of sales pioneering are not dead. Far from it, today's opportunities are as great, if not greater, than those which have existed at any time during the past.

Consumers continue to desire added comfort, convenience and luxury. To a portion of the buying public the purchase of a water system opens a new conception of living standards. This may take the form of later purchase of a complete bathroom installation. That portion of the buying public in urban areas which already has the complete bathroom installation will, as time progresses, be customers for a more pretentious installation, the addition of a first floor powder room or a modern heating system.

Time changes, human desires do not stand still. The only static thing is change. Our industry, being as it is, a leader in the progress towards that ideal of comfortable, convenient, healthful living, is assured of a continuing market.

Since civilization must be regarded as composed of those aspects which contribute to more comfortable living and higher living standards, it is plainly apparent that the plumbing and heating contractor-dealer is a definite part of civilization and progress. By directing progress and advancement in living standards, our industry assures itself of a position in daily life for years to come. Such a future does not face all industries; such a position does not face our industry if its own advancement, honesty and ambition ever fail. The old truth is still a fact—the future of a man still remains exactly what he wants to make it. The same holds true for an industry.



Prices Are Lowest-

Compared prices lower ing. Advance in plum- less than one-third of Continued campaign has

LAST month in an article entitled "Counter Attack" some means of combating adverse price propaganda directed at the plumbing and heating industry were introduced. Since the publication of that article, the campaign to bring public attention to the true facts regarding price level of plumbing and heating materials has assumed nation-wide proportions. To aid in the active continuation of that campaign, DOMESTIC ENGINEERING here presents further pertinent facts and a new view of statistics compiled by the Bureau of Labor Statistics of the United States Department of Labor.

The campaign has met with an enthusiastic reception from all branches of the industry. As an indication of the interest aroused on the subject are the following excerpts from some of the letters received from manufacturers' wholesalers and contractor-dealers:

L. J. Kruse, president, N.A.M.P., has made these comments: "I don't know who started all the propaganda to the effect that plumbing and heating prices are 'too high,' but the fact of the matter is that plumbing and heating prices, when compared with other building materials, are really at bargain levels.

"Building material prices are governed by many factors which the public does not always know. The old law of supply and demand has, in recent years, been modified by such intangible factors as 'public confidence,' 'devaluation of the dollar,' and such tangible factors as wages, rental levels, availability of construction funds, etc. The combination of these tangible and intangible factors has influenced the price of building materials sharply, at certain times, with the resultant effect of an unbalance between relative prices in the component elements which go to make up the material of the average structure.

"It seems to me that every agency in the plumbing and heating industries should exert itself to convince prospective builders of homes and other structures that plumbing and heating material prices are not high; but on the contrary have advanced less than any other element of material in a structure.

"It is gratifying to observe that the trade press is giving to the plumbing and heating industries comparative statement showing that plumbing and heating prices are lagging behind the advances in other building material prices. These facts should be used by everyone, particularly master plumbers, in encouraging prospective builders to act now and really save money.

"Don't attempt to convince the prospective builder with a mere statement, unsupported by facts. Show the prospective builder that plumbing and heating materials are low in price and that they must inevitably rise. Point out that a delay in purchasing plumbing and heating materials means that they will eventually have to pay more for them in the immediate future."

From John J. Calnan, president of the Plumbing and Heating Industry Bureau: "Insofar as modernization is concerned, the plumbing and heating industries should make the most of the fact that the home building dollar today buys more and better plumbing and heating than at any time in recent years. Certainly the fact that plumbing fixtures today are selling for 10 per cent less than the average price for the last twelve years is proof that our industry, at least, is not guilty of unreasonable price advances in the material field. Relatively and actually, the values which our industry offers today should arouse the enthusiasm of the home building and modernizing public."

A bulletin to all members of the Plumbing and Heating Wholesalers of New England, Inc., shows the activity of this association to combat high price propaganda: "From time to time, various questions have been raised by our members as to the present values of plumbing and heating material as compared with other years, and the answer is shown herein. Unfortunately, in the past few months, there has developed in newspapers and magazines criticism of the high cost of new building and building materials, all of which has had a tendency to defer not only new construction, but to defer modernization as well. An examination of figures shows the following declines compared with 1926; plumbing and heating material, 21.3 per cent; brick and tile, 5 per cent; cement, 4.5 per cent; and paint and paint materials 16.4 per cent. Compared with 1930, plumbing and heating materials shows a decline of 10.8 per cent. These facts

New Evidence and Support for Campaign

than at campaign's open-bing and heating prices general price advances nation-wide proportion

make it apparent, that for residential construction and modernization, prices of these four outstanding elements strongly warrant a continuance of residential construction and modernization."

From Murray W. Sales & Co., has come this statement: "You are to be complimented on the program of advertising the present low prices of plumbing and heating material. Certainly the time is opportune to spread this propaganda and we are pleased to cooperate with you."

From the Merkel Bros. Co., have come these statements: "We are heartily in accord with your suggestion about combating propaganda in connection with the high cost of plumbing and heating goods."

From the Joseph Turk Mfg. Co., has come this declartion: "The new campaign being launched by the plumbing and heating industry is very complete, and we feel certain it will receive the support of the manufacturer, wholesaler and contractor-dealer. We want to do our part and are instructing our salesmen to help carry out this program."

Denver, Colo., *Post*
Cincinnati, Ohio, *Times-Star*
St. Paul, Minn., *Pioneer-Press*
Detroit, Mich., *News*
Washington, D. C., *Post*
Corpus Christi, Tex. *Caller*
Hartford, Conn., *Courant*

Above are a few of the many newspapers which have publicized the fact plumbing and heating costs are low. Our entire industry has responded to the need for offsetting adverse propaganda. Clippings at right show just a few of the many news items published as a result of activities of the Plumbing and Heating Industries Bureau

Prices Lower, Quality Rises

Plumbing and Heating Men Point to Better Value for New Home Builder

Prices of certain staple kinds of boilers have declined 53% in the last 17 years while radiator prices have dropped nearly 50%, says the Plumbing and Heating Industries bureau.

Even more startling than the difference in price is the contrast between the kind of heating equipment available today as compared with that offered 17 years ago.

Whereas 17 years ago choice was limited to the round b... there is a special high... boiler available for eve... fuel. Thoroughly insulate... in a handsome colorful s... with a long flue travel, an... fles to trap the gases of c... the modern boiler offe... dented fuel economy.

Add Beauty and Eco...

Similarly 17 years ago... of the homeowner was l... standard type of radiator... though efficient as a d... of heat, yet could boast ne... ty nor tasteful design. ... neers took the radiator i... gave it graceful, slender ... monizing with the finest...

Plumbing Fixture Costs Below 1933

Prices of staple plumbing fixtures today are 10 per cent below the prices in effect in the fall and spring of 1933-1934 and from 14 to 33 1-3 per cent below the base price for 1926, says the Plumbing and Heating Industries Bureau.

The comparison between prices of today and prices in the fall of 1933 and the spring of 1934 is significant, the Bureau points out, because this was the all-time low in the building industry.

There has been some comment on uniformed quarters about con... ded by a too ... the Bureau ...

LOWER PLUMBING FIXTURE COSTS

Prices of staple plumbing fixtures today are 10 per cent. below the prices in effect in the fall and spring ... and from 14 to 33 ⅓ per ce... base price for 1926, acco... Plumbing and Heating Indus...

The comparison between ... day and prices in the fall of ... spring of 1934 is significant, ... points out, because this was ... low in the building industry.

There has been some co... construction being retarded by ... rise in prices, the bureau obse... this comment may apply to ... plumbing industry and, indee... other items entering into h... struction, it points out.

Measured by every standard ... as well as standards of ...

PRICES DOWN FOR PLUMBIN(

Cost of Staple Fixtures 33 1-3 Per Cent Below 1926

Prices of staple plumbing fixtures today are 10 per cent below the prices in effect in the fall and spring of 1933-34 and from 14 to 33 1-3 per cent below the base price for 1926, according to the Plumbing and Heating Industries Bureau, with representation in Albany.

The comparison ... of ... 1933 ... nific... time ... the ... Re... ing ... price...

DROP IN COST OF PLUMBING

Prices of Fixtures 10 Per Cent Lower Than in 1933-34

Prices of staple plumbing fixtures today are 10 per cent below the prices in effect in the fall and spring of 1933-34 and from 14 to 33 1-3 per cent below the base price for 1926, says the plumbing and heating industries bureau.

The comparison between prices ...

PLUMBING FIXTUR... COSTS BELOW 19...

New Designs Add to Beau... of New Home at Cost That's Reasonable.

Prices of staple plumbing f... tures today are 10 per cent bel... the prices in effect in the fall a... spring of 1933-1934 and from 14... 33 1-3 per cent below the ba... price for 1926, says the Plumbi... and Heating Industries Bureau.

The comparison between pric... of today and prices in the fall ... ing of 1934 is st... eau points out, b... he all-time low ... ustry.

... some commer... uarters about co... retarded by a to... rices, the Bure...

... ment may appl... n general, it doe... plumbing indus... to many othe... into house con...

... every standard ... l as standards o... sign., efficiency ... performance ... better buy today ... ization and new ... it has ever been. ... ts.

... uilds or modern... s. the advantage ... ry . "provements ... ade in everything ... mplete plumbing ... the superb ...

PLUMBING COST FOR FIXTURES IS BELOW 1933

Improvements Noted at Cheaper Expense for Those Who Want to Build

Prices of staple plumbing fixtures today are 10 per cent below the prices in effect in the Fall and Spring, of 1933-1934 and from 14 ... per cent below the base ... 1926, George Evans of ... g Evans and Heinsbach, ... contractors. ... parison between prices ... ed q... and prices in the Fall of ... the Spring of 1934 is ... The points out, because ... the al... industr... has be... ing in ... this co... dities ... to the ... indeed ... ering ... red by ... as we ... olor, ... ineeri... is a ba... ation ... it has ... an w... is yea... e revo... at ha... g, engi... nbing ... b bea...

Plumbing Costs Under 1934

Still Below All-Time Low

Prices of staple plumbing fixtures today are 10 percent below the prices in effect in the fall and spring of 1933-1934 and from 14 to 33 1-3 percent below the base price for 1926, says the Plumbing and Heating Industries Bureau.

The comparison between prices today and prices in the fall of 1933 and the spring of 1934 is significant, the bureau points out, because this was the all-time low in the building ... been some comment in ... quarters about con... ng retarded by a too ... prices, the bureau ob... ...

Plumbing Far Below 1933

Cost Is Even Lower Than in 1926

Prices of staple plumbing fixtures today are 10 per cent below the prices in effect in the fall and spring of 1933 and the spri... nificant, the bur... because this was ... ilding in ... as been ... med qu... being r... in pri... his com... dities in ... to the ... ndeed, ... ring in ... by ... as well ... or, de... neering ... is a be... modern... than ... assert...

Plumbing Fixture Costs Are Lower

Considered Better Buy Today Than Ever

Prices of staple plumbing fixtures today are 10 per cent below the prices in effect in the fall and spring of 1933-1934 and from 14 to 33 1/3 per cent below the base price for 1926, says the Plumbing and Heating Industries bureau.

The comparison between prices of today and prices in the fall of 1933 and the spring of 1934 is significant, the bureau points out, because this was the all-time low in the building industry.

There has been some comment in uninformed quarters about construction being retarded by a too rapid rise in prices.

While this comment may apply to commodities in general, it does not apply to the plumbing industry and, indeed, to many other items entering into house construc... tion.

Plumbing Prices Still at Low Level

Prices of staple plumbing fixtures today are 10 per cent below the prices in effect in the fall and spring of 1933-1934 and from 14 to 33¼ per cent below the base price for 1926, reports Plumbing & Heating Industries Bureau.

The comparison between prices of today and prices in the fall of 1933 and the spring of 1934 is significant, the bureau points out, because this was the all-time low in the building industry.

Measured by every standard, monetary as well as standards of beauty, color, design, efficiency and engineering performance, plumbing is a better buy today than it has ever been, the bureau says.

Plumbing Prices Still at Low Level

Prices of staple plumbing fixtures today are 10 per cent below the prices in effect in the fall and spring of 1933-1934 and from 14 to 33¼ per cent below the base price for 1926, reports Plumbing & Heating Industries Bureau.

The comparison between prices of today and prices in the fall of 1933 and the spring of 1934 is significant, the bureau points out, because this was the all-time low in the building industry.

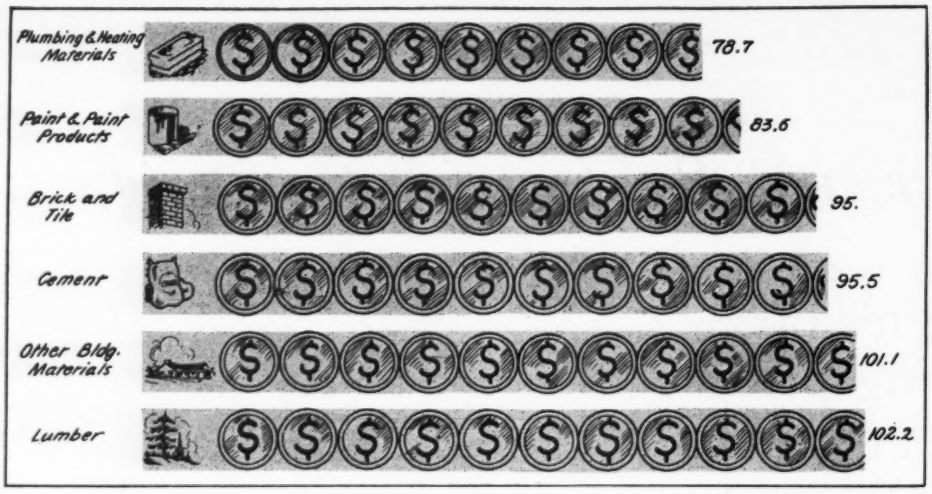
Plumbing Fixture Costs Under 1933

Prices of staple plumbing fixtures today are 10 per cent. below the prices in effect in the fall and spring of 1933-1934 and from 14 to 33 1-3 per cent. below the base price for 1926, according to the Plumbing and Heating Industries Bureau.

The comparison between prices of today and prices in the fall of 1933 and the spring of 1934 is significant, the bureau points out, because this was the all-time low in the building industry.

There has been some comment about construction being retarded by a too rapid rise in prices, the bureau observes. While this comment may apply to commodities in general, it does not apply to the plumbing industry and, indeed, to many other items entering into house construction, it points out.

Measured by every standard, mon...



At the left (Fig. 1) is a diagrammatic chart which indicates the prices of building materials. From this it may be seen that plumbing and heating prices are the lowest and the comparative values may be taken from the chart. The line chart (Fig. 2) directly below is a graphical presentation of plumbing and heating prices from January to July for 1937. But for a sharper increase shown from March to April, the advance has been steady

The Eastern Supply Assn. has incorporated the following statements in a bulletin to all members of the association: "There has been a lot of talk recently about advancing prices and many people have the impression that plumbing and heating products are materially higher than heretofore. This is not true. Figures compiled by the Bureau of Labor Statistics, United States Department of Labor, show that there have been no substantial price advances in plumbing and heating products in recent years. They are a buy at the present time. A little investigation will show that criticism about prices does not apply to plumbing and heating products."

For purposes of comparison, the Bureau of Labor Statistics has adopted 1926 as a normal business year and, assigning average wholesale prices for this year a value of 100 per cent, they have traced the fluctuation of commodity prices in all fields up to the present. Fig. 3 presents in graphical form the movement of the average price of commodities, the average price of building materials as a whole, and the average price of plumbing and heating materials. Note that the prices of plumbing and heating materials have been lower than building materials in general since early in 1932 and lower than commodities in general since the middle of 1934. At the present time building materials stand at 96.9 per cent of their 1926 level, all commodities together stand at 87.2 per cent and plumbing and heating materials stand at only 78.7 per cent.

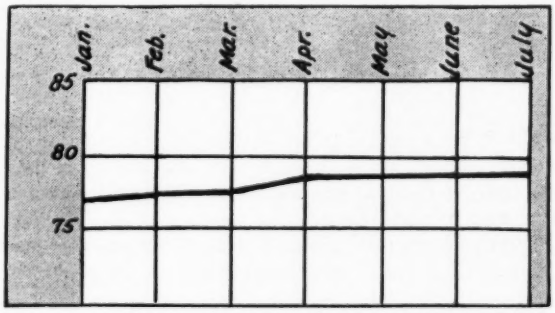


Fig. 3 also shows the average price of plumbing and heating materials for the past 138 months. Although this average includes the disastrously low prices of the depression years, it is still 3.4 per cent above the present price level throughout the industry.

Campaign Material

Window Display

Price each including shipping charges . . . $4.95

Sticker

Price per thousand . $2.75

Electrotype

Price each $0.50

Address

The Editor, Domestic Engineering
1900 Prairie Avenue, Chicago

TABLE I

PRICE INDICES OF ALL COMMODITIES INCLUDING PLUMBING AND HEATING PRODUCTS

[1926=100] FIGURES IN TEXT ARE BASED UPON JUNE, 1937. THIS TABLE HAS BEEN BROUGHT UP TO JULY, 1937.

Group and Subgroup	July, 1937
All commodities	87.9
Farm Products	89.3
Grains	105.2
Livestock and poultry	105.0
Other farm products	75.1
Foods	86.2
Dairy products	76.4
Cereal products	92.3
Fruits and vegetables	71.2
Meats	106.0
Other foods	74.6
Hides and leather products	106.7
Shoes	107.4
Hides and skins	116.2
Leather	98.7
Other leather products	102.7
Textile products	78.3
Clothing	90.1
Cotton goods	86.8
Knit goods	64.8
Silk and rayon	33.9
Woolen and worsted goods	94.4
Other textile products	69.3
Fuel and lighting materials	78.1
Anthracite	76.6
Bituminous coal	98.6
Coke	104.9
Electricity	(*)
Gas	(*)
Petroleum products	61.8
Metals and metal products	96.1
Agricultural implements	94.2
Iron and steel	99.8
Motor vehicles	93.7
Nonferrous metals	92.7
Plumbing and heating	78.7
Building materials	96.7
Brick and tile	95.4
Cement	95.5
Lumber	101.3
Paint and paint materials	83.9
Plumbing and heating	78.7
Structural steel	114.9
Other building materials	101.0
Chemicals and drugs	83.9
Chemicals	89.9
Drugs and pharmaceuticals	78.2
Fertilizer materials	71.3
Mixed fertilizers	74.2
Housefurnishing goods	89.7
Furnishings	92.6
Furniture	86.8
Miscellaneous	79.0
Automobile tires and tubes	56.4
Cattle feed	116.5
Paper and pulp	94.2
Rubber, crude	39.6
Other miscellaneous	85.7
Raw materials	86.5
Semimanufactured articles	87.0
Finished products	88.8
All commodities other than farm products	87.5
All commodities other than farm products and foods	86.3

*Data not yet available.

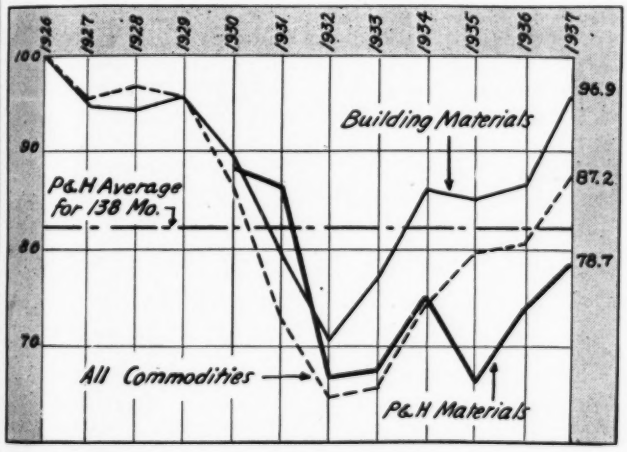


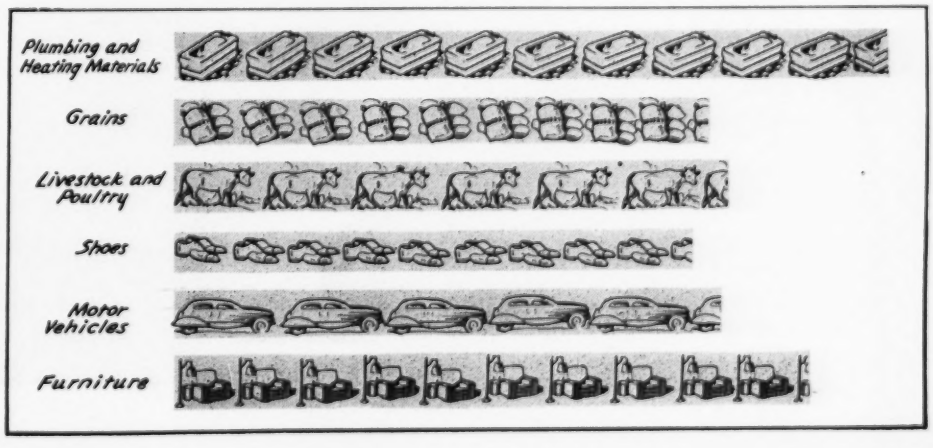
Table I gives price indices similar to those presented graphically in Fig. 3 for all the commodities studied divided into groups and sub-groups.

There is, however, another aspect of the price situation which the industry should bring to the attention of the public in general and especially to those who contemplate building or modernization but are delaying in the hope of lower material prices. Such delay might be well advised if there were any immediate prospect of lower prices, but all indications point to a steady or a slowly rising market. The graph of plumbing and heating prices for the first six months of 1937 given in Fig. 2 shows no tendency to drop. Other considerations lead to the same conclusion. The price of pipe, which follows the steel market, may be expected to remain steady since no change in the price of steel is expected this quarter. Prices of brass goods are held steady by foreign purchases of copper for war purposes. The leading manufacturers of fixtures would like to advance prices but will probably not do so in the near future due to the published prices in mail-order catalogs which will be in effect until about February of 1938. Increasing prices of scrap iron and labor may tend to increase the price of soil pipe slightly.

All indications, therefore, point to steady or slightly higher prices for plumbing and heating materials in the near future, and nowhere is there any promise of lower prices for those who would delay needed building or remodeling.

Another point of great importance to the industry is

(Continued on Page 171)



The chart above (Fig. 3) shows the prices for plumbing and heating materials, commodities and building materials for a period starting in 1926 and continuing to June, 1937. This is another way of showing that plumbing and heating prices are, at present, far below the level of other prices. At the right (Fig. 4) is a presentation of the relative purchasing power of a dollar for the items depicted on the chart

Air Conditioning-*With*

Two sources of cooling were used in the this A. C. system. Article tells how dif- were overcome in installation of heating

THE immediate and financially satisfactory reaction of the office-space renting public to air conditioning has probably never been more markedly demonstrated than in the case of the Martin Brown office building. Built in 1926, this four-story building in Louisville, Ky., has never proved a satisfactory investment, due largely to dissatisfied tenants and a consequently rapid tenant turnover.

The four floors were planned as foundation floors for a future 22 story office building. These lower floors were intended to be occupied by shops or businesses requiring large open floor spaces without much interior partitioning. Louisville, however, being a street-level shopping community, was slow to respond in the manner intended and it was necessary to build in corridors and small office space which would be more readily rentable.

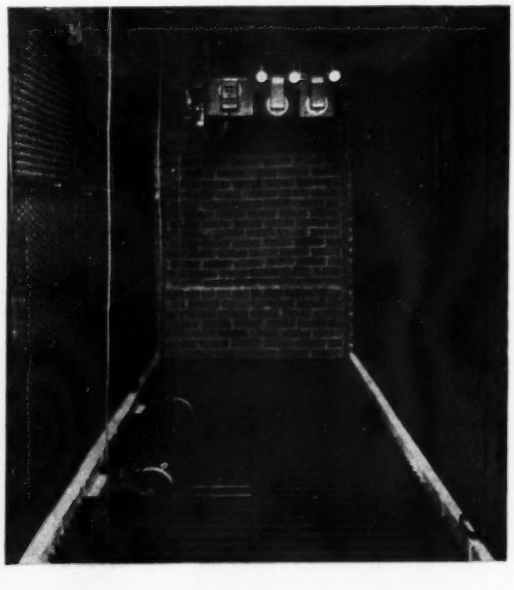
However, these smaller offices were found to be undesirable and the large windows in the exterior offices made heating difficult in winter and set up an even worse condition in summer.

The owner decided to pioneer what seemed a bold venture and to have the first completely air conditioned office building in the South. Plans were made and the contract was awarded. Several of the long vacant spaces were spoken for before the installation was finished, and shortly after completion the building was 85 per cent tenanted and on a paying basis, and the rents were increased approximately 20 per cent.

Not only is this installation interesting because of the fact that improved rentals, such as these, prove a powerful argument for the sale of air conditioning equipment, but it is also interesting from an installation viewpoint. Since the equipment was not put in at the time of the construction of the building, and since no provision had been made for the installation of air conditioning at a later date, it was necessary to accommodate the equipment to the peculiarities of the building. A description of the system and the manner in which it was installed indicates many of the difficulties that were encountered and overcome.

In general, the operation of the various parts of the system may be described as follows: In Summer, cooling and dehumidification is accomplished by a combination of deep well water and chilled water coils in 7 conditioning units located, one in the basement for the first floor stores and lobby, and two on each of the three upper floors. Design conditions during this period are 95 deg. Fahr. dry bulb and 45 per cent rel. humid. outdoors, with 80 deg. Fahr. dry bulb and 50 per cent rel. humid. maintained indoors; with minimum fresh air of 20 c.f.m. per person. This 15 degree differential is automatically reduced as the outdoor temperature drops below 95 deg. Fahr. dry bulb, by means of a compensating thermostat in the fresh air intake, which resets the various thermostats throughout the building. To allow for the rapidly moving sun load, each floor is divided into 4 zones by

(Turn to Page 74)

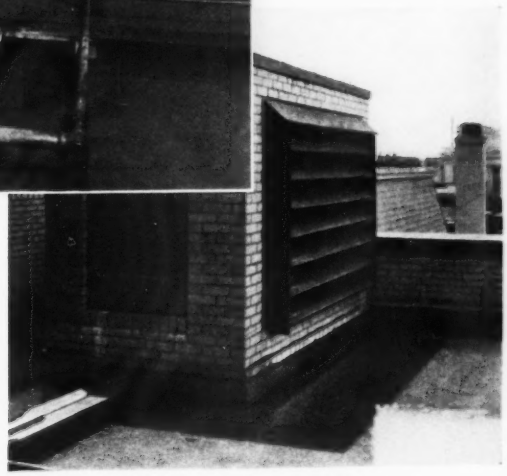


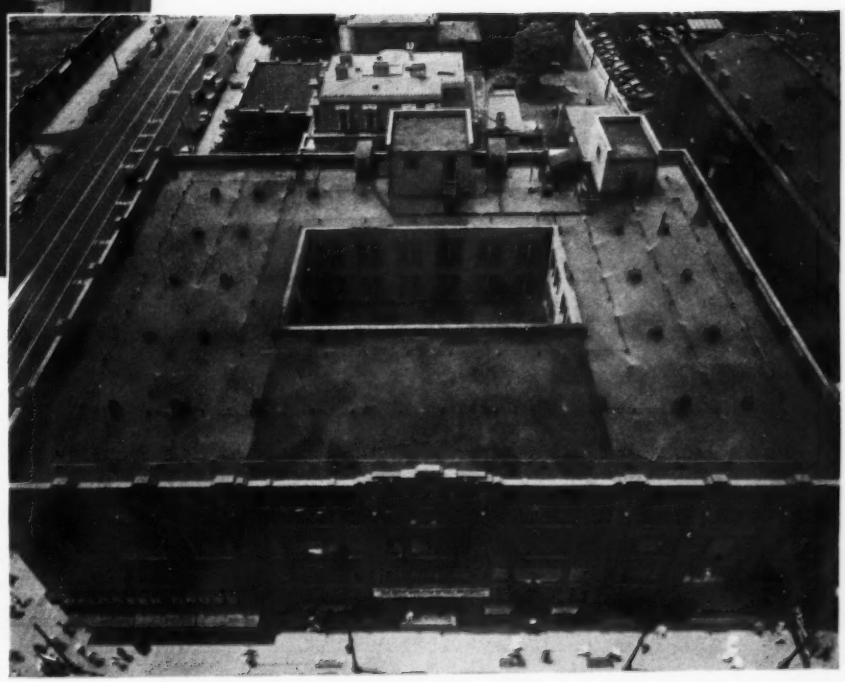
The view at the right shows the interior of one of the pent houses which are used to admit fresh air to the system. Note the location of the filters, controls, as well as the various dampers

Well Water and Refrigeration . . . .

design of ficulties and cooling

The illustration at the left shows a closeup of several of the roof sprays in operation. The use of these sprays serves to reduce the cooling load on hot days





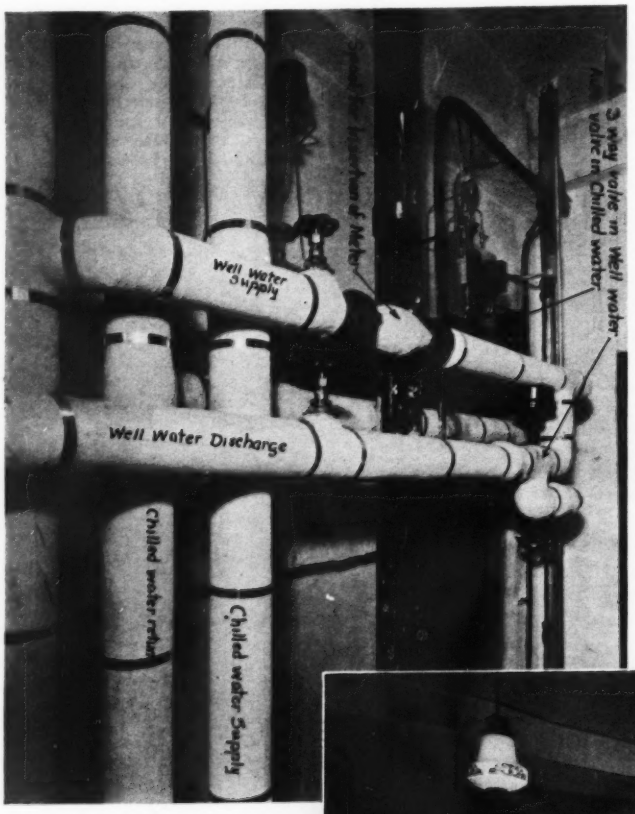
Shown above is one of the air conditioning units located in the hall of the Martin Brown office building. The illustration at the right shows an aerial view of the roof, indicating the number and location of the roof sprays. Above, and at the right is an exterior view of the pent house which contains the air filters, tempering coils and the face and bypass dampers which control the amount of fresh air that is to be admitted

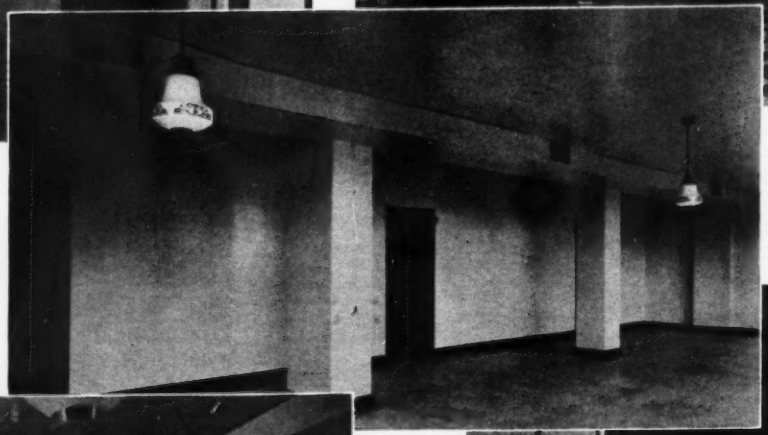
Directly below is a view of some of the piping connections for the cooling system. The upper right hand picture shows a view of the lobby. Installation of air conditioning equipment in this building turned what had been a loss into a profit

thermostatically controlled volume dampers in the ducts feeding each zone.

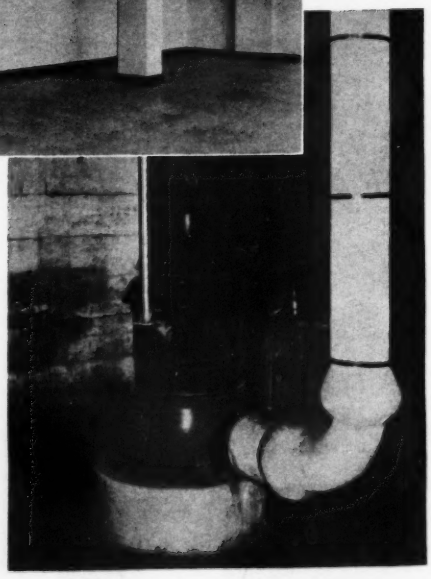
The well water is pumped directly to each of the seven conditioning units and the three condensers from a 450 g.p.m. 30 hp. well, 110 ft deep. The temperature is 59 deg. Fahr. at the well discharge, reaching the coils at an average of 60 deg. Fahr. and leaving at 66 deg. Fahr. This discharged water from the six upper floor units is piped up and sprayed out on the main roof, while the water from the first floor unit, and the condensers, is sprayed out on the light court roof.

Three condensing units (1-20 h.p. and 2-15 h. p.) furnish 38 deg. Fahr. refrigerant to the 223 g.p.m. three circuit chiller tank adjacent. Chilled water at 48 deg. Fahr. is pumped to the seven conditioning units and returns to the tank at 54 deg. Fahr.





Directly below is shown a view of one of the offices with the duct running near the ceiling. The lower right hand view shows the deep well pump used in the cooling system



The total cooling load on the building is 1,434,500 Btu. (approx. 119 tons of equivalent refrigeration) of which 52 per cent is supplied by 254 g.p.m. in the well water coils. The total cubic content of the space cooled is 567,000 cu. ft., and a total fan discharge capacity in the seven units of 43,410 c.f.m. of which 8200 c.f.m. is supplied as minimum fresh air.

RULES OF THUMB

Several interesting rough "rules of thumb" may be obtained from the above data, which have been found to apply fairly well in making preliminary estimates for similar buildings. Assuming 4½ air changes per hr., and given the cubage to be cooled, the total fan volume is obtained. This c.f.m. multiplied by 34 gives the Btu. total heat gain, of which 52 per cent may be handled with 60 deg. Fahr. well water. Gallons per minute of well water is derived here on a basis of 4 g.p.m. per ton of refrigeration effect, allowing a 6 degree rise in the water passing through the coils. From the tables the reader may check the above average figures for each individual floor.

The use of the two rear enclosed stairways as fresh air supply chambers solved what at first had seemed to be one of the major problems. The six upper floor units (3 to each floor) are located in the main corridor, against the stairway wall. Each unit takes its recirculated air supply directly from the corridor. Fresh air for each unit is drawn into the lower rear portion of the unit through an opening cut in the stairway wall. The main fresh air is drawn from a pent house on the roof directly over each stairway. Renewable type filter units and rain shed louvres are built into the two sides of each pent house, and automatic dampers are arranged in the pent house floor under bar gratings, all of such size and capacity as to allow all fresh air to be drawn in by the units during the between season periods.

Tempering of the ventilation air in cold weather is accomplished with a fin and tube steam coil set in the floor of each pent house, with automatic face and bypass dampers operated by a thermostat located in the stairways at the second floor level. A diaphragm valve in the steam connection to each unit is operated by an outdoor thermostat, closing the valves at 70 deg. Fahr. on a rising temperature.

The fan discharge ducts are exposed on the ceilings of the corridors and offices on the three upper floors, and furred in with metal lath and plaster in the first floor stores. Sharp angle bends and fittings were used throughout, with duct turns for noiseless deflection. All ducts are made 2 gauges heavier than normally used and all longitudinal seams are on top. No drive slides, standing seams or bracing angles mar the smooth outside appearance. The various sections were butt jointed over heavy band collars inside the ducts, each joint and seam throughout being cemented to prevent any possible dirt streaks. The grilles were prevented from leaking at the edges by cementing ½ in. wide strips around the borders before mounting on the sides of the ducts. Each section of duct was erected with concealed hangers inside the duct near one end. Thus the ducts present the appearance of beams and are attractive in appearance.

The central view on the opposite page indicates the manner in which the ducts were constructed to harmonize with the general architecture of the building. No false beams were used and the construction cost was thus considerably reduced

CALCULATED LOAD

	1st Floor	2nd Floor		3rd Floor		4th Floor		TOTALS
Cu. Ft. contents	104,500	164,450		149,000		149,000		567,000
Portion of floor	All	N	S	N	S	N	S	
Time of greatest load	2 p.m.	2 p.m.	10 a. m.	10 a.m.	2 p.m.	10 a.m.	2 p.m.	
Int. Sensible	145,584	78,530	135,310	112,273	111,300	130,640	147,100	860,737
Plus 10 per cent	.....	7,853	13,531	11,227	11,130	13,064	14,710	
					+25,000			
Total Int. Sens.	145,584	86,383	148,841	123,509	147,430	143,704	161,810	957,252
Corridor	Incl.	18,135	14,285	14,280	16,550	20,785	23,050	107,085
Fresh Air Sens.	35,000	15,800	5,840	5,840	15,900	5,840	15,900	100,200
Total Sens.	180,584	120,418	168,966	143,620	179,880	170,327	200,760	1,164,555
Fresh Air Lat.	50,800	23,100	23,100	23,100	23,100	23,100	23,100	189,400
Occupant Lat.	13,500	8,820	11,000	10,440	9,360	10,440	9,360	72,920
Total Load	244,884	152,338	203,066	177,160	212,340	203,869	233,220	1,426,877
No. People	75	49	61	58	52	58	52	405
C.f.m. Fresh air	2,200	1,000	1,000	1,000	1,000	1,000	1,000	8,200

UNIT SPECIFICATIONS

Total Load	244,000	152,000	206,000	177,000	216,500	205,000	234,000	1,434,500
Well Load	119,000	91,800	103,000	90,800	117,500	105,000	125,000	752,100
Chill Load	125,000	60,200	103,000	86,200	99,000	100,000	109,000	682,400
Well g.p.m.	40	31	35	31	40	35	42	254
Chill g.p.m.	41.6	20.1	34.3	28.8	33.0	33.3	36.3	228
C.f.m. Total	6,600	3,920	6,750	5,600	6,690	6,510	7,340	43,410
C.f.m. Fresh	2,200	1,000	1,000	1,000	1,000	1,000	1,000	8,200
	d.b. w.b.	d.b. w.b.	d.b. w.b.	d.b. w.b.	d.b. w.b.	d.b. w.b.	d.b. w.b.	
Ent. Air deg. Fahr.	84.6 70	87.8 70.5	82.7 68.3	83.2 68.6	84.5 69	83.7 68.8	84.75 69.0	
Air Leaving Well Water coils deg. Fahr.	68.5 65	67.5 64.2	69.0 64.0	68.8 64	68.5 64	68.8 64	69.5 64	
Supply Air	60 59	60 59	60 59	60 59	60 59	60 59	60 59	
Chill Water Coil Surface Temp. deg. Fahr.	56	56	58	58	58	58	58	
H.p. Fan Motor	3	2	3	3	3	3	3	20

Controlled humidification is accomplished by means of spray nozzles inside the casing of each conditioning unit, the supply of hot water being regulated through automatic diaphragm valves from a humidistat located in the corridors on each floor. Switches and controls for the entire system are mounted on one large board. The motor loads are as follows:

1	30 hp. deep well motor
1	20 hp. condensing unit
2	15 hp. condensing units
1	5 hp. circulating pump motor
6	3 hp. fan motors
1	2 hp. fan motor (second floor N. unit)
1	½ hp. air compressor motor

The above motors total 105½ hp. Starting the well water motor is accomplished by means of an automatic four step resistor starter wired so that the well motor starts when any one of the condensing units starts.

The automatic control system consists of entire year 'round control of temperature and humidity. Fresh and recirculating air dampers in each of the seven units are controlled from an outdoor change-over thermostat. The fresh air dampers in the units are in two sections arranged so that during the actual heating and cooling season just the amount of fresh air needed for proper ventilation (approximately 20 per cent of the total possible volume) is allowed to enter through the fixed hand set position.

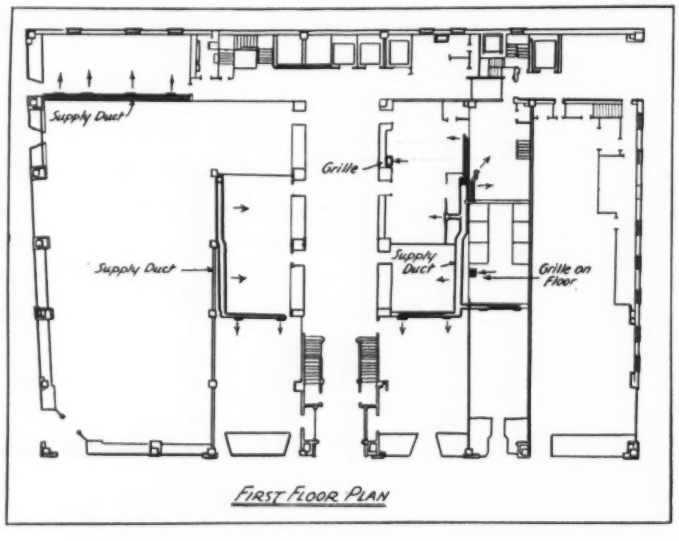
As was mentioned previously, fresh air for all units enters through filters in the two pent houses on the roof which are located over the stairways. A heating coil in each pent house is provided with face and bypass dampers controlled from a thermostat in the stair hall. During the actual cooling season either face or bypass, or a combination of the two, is open. Between seasons, when the temperature varies between 65 deg. Fahr. and 75 deg. Fahr., the large main section of fresh air damper in the pent house and the automatic controlled section in the fresh air intake to each of the seven units, is open to secure the benefit of ventilation and cooling as far as possible without the use of mechanical equipment. Under this cycle, the recirculating air dampers in the seven units are completely closed.

When the temperature drops below 65 deg. Fahr. or any other predetermined outdoor temperature, the two point change-over thermostat with an element located in the fresh air intake, automatically opens the return air dampers and closes the controlled portion of the fresh air intakes in the seven units, and closes the main fresh air dampers in the pent houses. Above 75 deg. Fahr., or any other predetermined outdoor temperature, the deep well is turned on automatically through the step resistor magnetic switch and at 80 deg. Fahr. outdoors the circulating pump and condensing units are automatically put into operation. During the cooling season (above 80 deg. Fahr.) the three way well water valves, and the straight way chilled water valves in the water connections to coils are automatically operated from the thermostats and humidistats located in the corridors on each floor, in the path of the recirculated air.

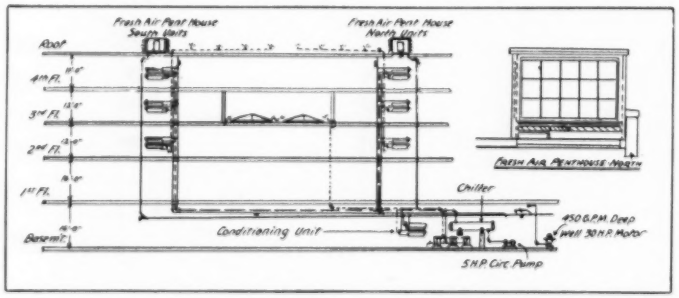
The three way valve allows the well water to pass either through or around the coils according to the demand of the thermostats. The chilled water valve operates according to the demand of the humidistats or the thermostats, until both instruments are satisfied.

Operation of the three condensing units during actual

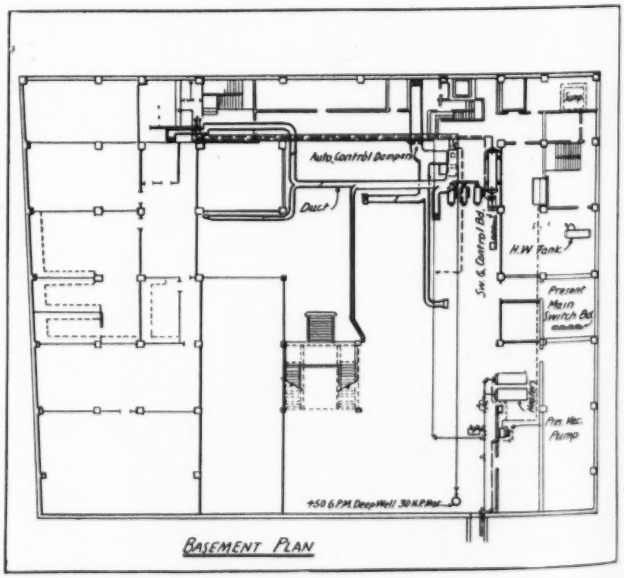
(Continued on Page 163)



Below is shown an elevation plan of the building which indicates location of some of the air conditioning equipment



At the left is a view of the first floor plan and directly below is a plan of the basement which shows where the air conditioning equipment for the central part of the system is located



Sailing . . .

The recreational side of this contractor's activities are matched only by his association and his business building efforts

ACCORDING to the old saying, "All work and no play makes Jack a dull boy." However, modern business practice has revised that old saying somewhat so that play or recreation is considered as a necessary adjunct to business efficiency. An example of this revised belief can be found in the person of Philip S. Bailey, director of the National Assn. of Master Plumbers. Mr. Bailey is shown on this page as a yachtsman. It is true that Mr. Bailey does spend a good portion of his recreational activity aboard his sailboat. It is equally true that such recreation has enabled Mr. Bailey to assimilate a large volume of work.

In addition to his national association activity, Mr. Bailey is active in the business, fraternal, social and civic affairs of his community. A forward looking, successful contractor-dealer, Mr. Bailey has served as moderator of Scituate, Mass., for the past three years. In addition, he is vice president of the Scituate Cooperative Bank. Mr. Bailey is also a talented musician and for twenty-five years has led the church choir in his home town of Scituate.

The connection Mr. Bailey has had with association affairs dates back for a number of years, he being past president of the Massachusetts State Assn. of Master Plumbers. His service in association work has been climaxed this year by his appointment as director of the national association.

Despite this press of business, association and civic activity Mr. Bailey finds time to enjoy his twenty-two foot sailboat. He makes occasional trips with his family and friends in deep sea fishing off the coast of Massachusetts.

The illustration at the top of the page shows Mr. Baily enjoying his favorite recreational activity. Outside of his work, Mr. Baily is also active in fraternal and social orders

In line with his business activity, Mr. Bailey's chief aversion is directed against the phrase: "First class second hand fixtures." Mr. Bailey declares that such fixtures are like the dodo, there just isn't any such animal. As an example, there is a recent case which was brought to Mr. Bailey's attention. The owner of a building under construction in a neighboring city let a contract for several urinals and closet bowls described by the specifications as first class second hand fixtures.

Once the fixtures were installed, however, the owner inspected them and immediately called Mr. Bailey, requesting that he make a trip to inspect the installation. This Mr. Bailey did, more out of curiosity than anything else. Mr. Bailey found one of the four urinals cracked and the others greatly discolored. The owner had held up payment and stated to Mr. Bailey that he was dissatisfied with the installation, pointing to the cracked urinal as one of the reasons of his dissatisfaction.

Mr. Bailey pointed out, however, that the cracked urinal was the best of the lot for it did not leak. The others he declared were at least twenty years old and definitely insanitary and unsafe. He wasted no time pointing out that the installation had been exactly in accordance with the owner's specifications, and that furthermore there was no such thing as a first class second hand fixture. This owner therefore learned a valuable lesson, the hard way. That lesson is that a quality installation demands both quality material and quality service.

Don'ts—

Fall Cleaning of automatic heating

ANNUAL Fire Prevention Week, October 3 to 9, is an event which gives the contractor-dealer an additional chance to perform needed civic service. It also provides an unexcelled opportunity of getting immediate business as well as scheduling future business.

It is smart merchandising to tie in with special events. In fact, the United States Chamber of Commerce recently has issued a bulletin covering the rise of special event merchandising. Public attention can be focused during a short period following a barrage of advertising and publicity with much greater success than it can be by promotion spread out over a period of time. Fire Prevention Week commands respect, first, because it concerns a subject important both from financial and human aspects and, second, because it has become so well known through the cooperation of schools, Federal and state agencies, insurance companies, clubs, safety councils, the National Fire Prevention Assn. and others. All of this promotion is particularly advantageous for plumbing and heating products and services.

A knowledge of the magnitude of the fire problem, particularly with respect to homes, is desirable. Financial loss in dwellings, while impossible to compute exactly, is estimated at around $100,000,000 a year. Ten thousand persons lose their lives annually by fire, about two-thirds of them in homes. Dwelling fires cause more personal injuries than fires in any other class of property. The measures of prevention and protection which have been applied successfully to industrial and public buildings have been applied only in a limited way to dwellings. While Fire Prevention Week is not concerned solely with home fires, they do receive a large proportion of the emphasis.

In most communities the week is preceded by advertising and publicity designed to make people think about fire dangers in their own homes. Radio speakers help to awaken interest. Public or club meetings are held. In all these events the contractor-dealer can and should take an active part.

The plumbing and heating contractor-dealer has a peculiarly appropriate message for Fire Prevention Week. Defective heating systems are one of the greatest single causes of fires. Bad chimneys and flues cause about $20,000,000 in fire loss yearly; furnaces, boilers,

The illustration above shows one "don't" that causes countless accidents and injuries year after year. Property damage resulting from such practices runs into a very considerable figure

That tie in with Fire Prevention .....

heating equipment and promotion of and safety equipment are most timely

etc. account for $14,000,000. Publication of such figures might seem to constitute negative advertising, the effect of which would be to lessen business rather than to increase it. Such is really not the case; for if a man is impressed forcefully with the fact that his house may burn down unless he replaces an unsafe heating unit, undoubtedly he will make the replacement. Widespread knowledge of the dangers of unsafe heating equipment, coupled with explanation of the safety of modern systems, will increase buying of up-to-date systems.

This Is
Fire Prevention Week

- The time for us to make sure that our homes are safe from the "bad master". . . . Not for this period only—but for the other 51 weeks as well.
- This is the time, too, for checking up on our heating systems. . . . To see that they will keep us warm this winter. . . . To relieve our minds of worry. . . . To make sure that they are in SAFE condition.
- For free inspection by a heating expert, call us now.

YOUR NAME

Your Address
Phone No.

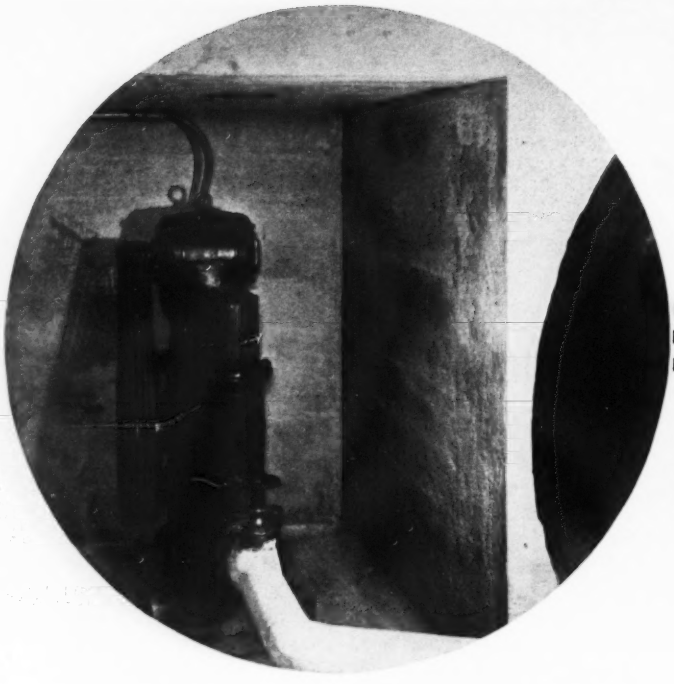
Plumbing and heating contractor-dealers perform a real service in preventing fires when they install safe heating plants. Contractor-dealers carry as part of their stock in trade one of the means of putting a fire out once it is started—water systems. The need for water systems with suitable reserve is especially marked on farms and in homes outside of incorporated areas. The fire loss here, away from municipal apparatus, is tremendous. Much of this loss can be eliminated by domestic water systems of adequate capacity.

The National Fire Protection Assn. pamphlet, "Water Supplies for Rural Fire Protection," recommends that water systems have a capacity of at least 600 gal. per hour. When a shallow well with a supply sufficient only for domestic use is available, a storage tank for reserve capacity should be supplied.* Such a storage capacity should be about 1,600 gal. In localities where there is no

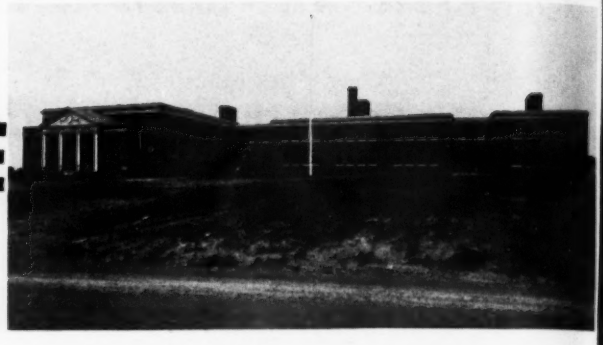
(Continued on Page 174)

*DOMESTIC ENGINEERING, October, 1936, p. 79.

Unsightly and littered basements are another fire hazard to be avoided. With the modern heating equipment that is now on the market there is no need for a basement to be in this condition



Schools

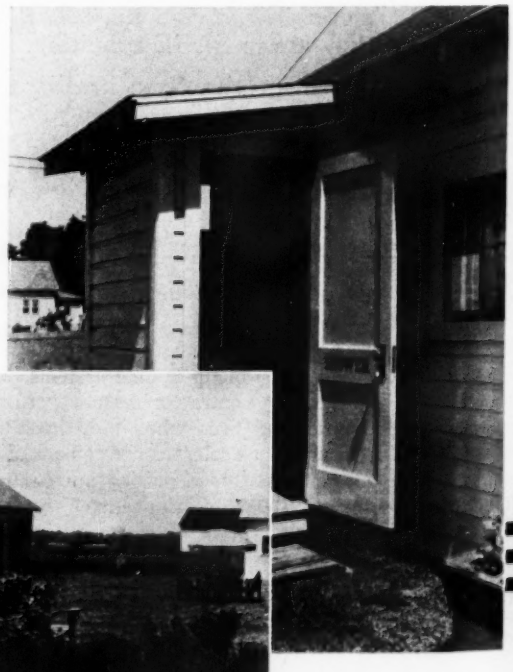


At the left is shown a deep well water pump which supplies the water for the country school shown directly above. Centralization of country schools into units such as this seems to be the trend

Water System—Applications

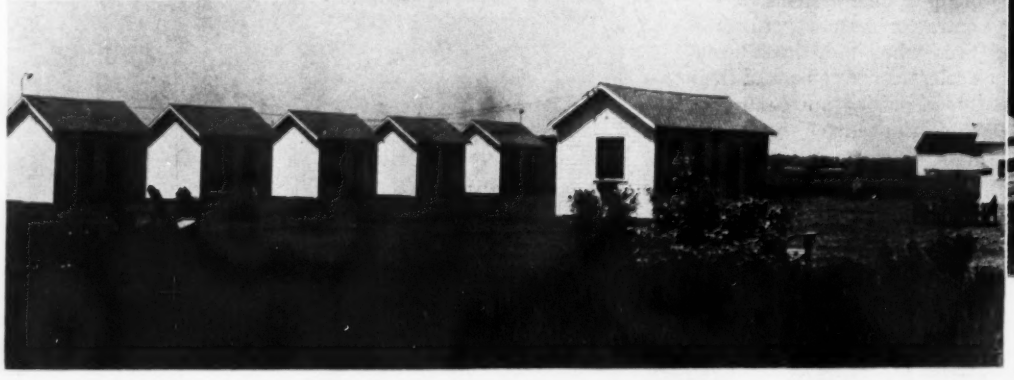
THERE is an old adage, paraphrased in many different ways that "to cook a fish, you first must catch it." Today that same idea might be applied to the sale of running water systems; to sell your product first find where your market is located.

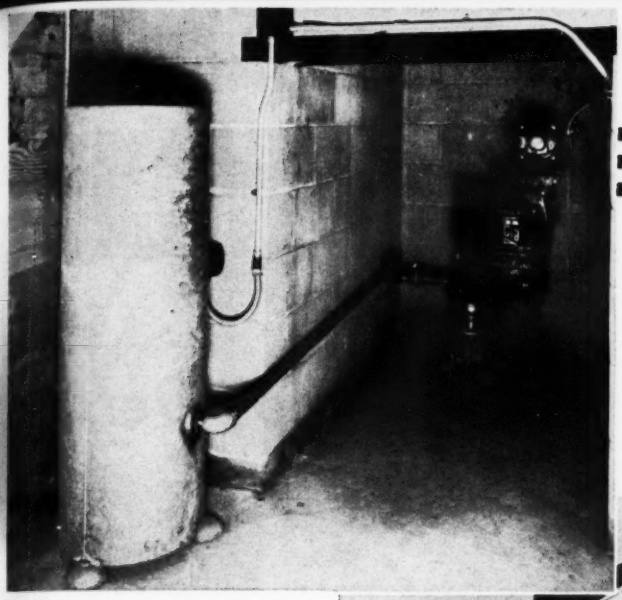
The rapidly expanding growth of suburban communities where there is no central system of water supply offers one potential market, for the people who live here are used to and desire the comforts of running water in their homes. Another expanding market is to be found in rural homes where the comforts suggested by the illustrations shown here will be readily appreciated. Yet another market is to be found in tourist camps. The traveler who seeks refreshment after a day's drive, will make his selection of a camp on the basis of whether or not he can have the comforts of running water.

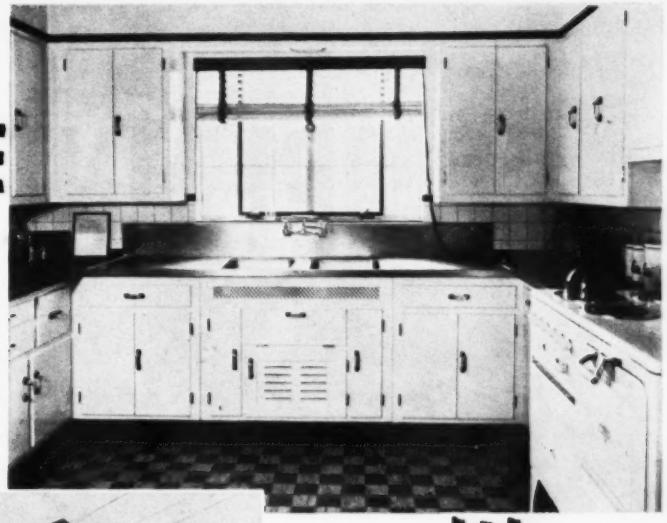


Running water enables tired tourists to take a shower when the day's driving is finished. This is a selling point for pumps

Tourist Camps

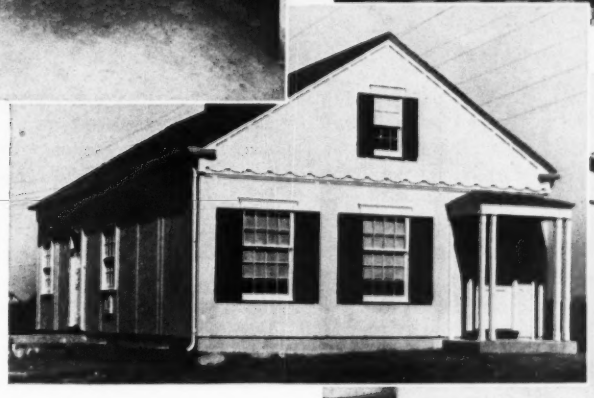


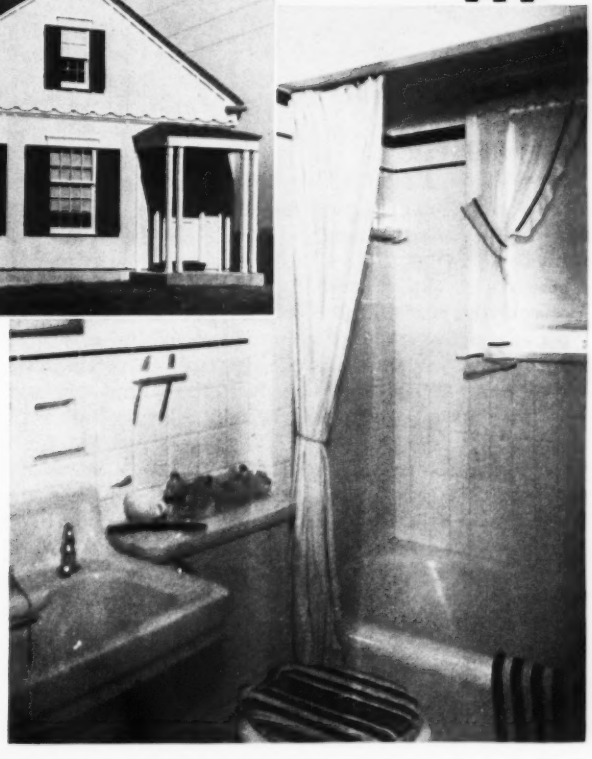




Homes

Living conditions in rural and suburban homes such as these shown here are bettered by the modern bathrooms and kitchens made practicable by running water





At the left is shown another rural application where the home has been made more comfortable by the addition of running water

Below is shown another view of a tourist camp which furnishes running water. Individual cottages are in the background

COMPLAINTS, ANSWERS

HIGHLIGHTS of the Latest News from WASHINGTON

Recent Decisions Now Help Define

THREE complaints involving the giving of brokerage in violation of the Robinson-Patman Act have been issued recently in the Federal Trade Commission. In the case of Webb Crawford Company, it is alleged that this company is a wholesale grocery whose officers also run a firm known as Daniel Brokerage Company, which is a partnership. These partners, it is alleged, own 93 per cent of the stock of the Webb Crawford Company, which company is the largest customer of the brokerage firm. Numerous selling concerns are named as respondents and it is charged that the Webb Crawford Company places orders for goods, wares and merchandise through the brokerage firm with these sellers. It is further charged that the sellers pay and deliver to Crawford Company a so-called brokerage fee or commission which is a certain percentage of the sales price for goods sold to that company and that the Webb Crawford Company receives these commissions for which no services connected with the purchases were rendered to the sellers. It is also charged that the individual respondents, doing business as Daniel Brokerage Company, receive such fees and commissions while they own 90 per cent of the stock and control the Webb Crawford Company, and that no services are rendered to the sellers by the individual respondents. This is all charged to be a violation of subsection (c) under Section 2 of the Robinson-Patman Anti-Price Discrimination Law.

Matter of United Buyers Corporation is the title of another case in which the complaint charges violation of the brokerage section of the Robinson-Patman Act. It is alleged that the United Buyers Corporation is a corporation in which numerous wholesalers of groceries and food stuffs are all share-holding members. Numerous sellers of such food-stuffs are also named as respondents. It is charged that United Buyers Corporation is engaged in the business of providing market information and purchasing services for about forty-six wholesale grocery concerns, each of whom owns five shares of stock in United Buyers Corporation. This corporation, it is charged, receives orders to purchase groceries and transmits them to the sellers, the goods being shipped directly to the buyers. It is also charged that this United Buyers Corporation has organized various local groups of retail grocery stores to cooperate with respondents in the sale of food-stuffs and other commodities purchased from the sellers and that the United Buyers Corporation serves the various wholesale grocery concerns constituting its membership through a trained staff of field men who attempt to increase the sales of the wholesalers to such organized independent retailers by instructing the retailers in the use of combined advertising, uniform display arrangements, etc. In the course of this commerce, it is alleged that the sellers have paid or granted to the United Buyers Corporation and that that corporation and the buying corporations have received commissions or brokerage fees or allowances or discounts in lieu thereof and that under such circumstances no services connected with the sale and purchase were rendered to the sellers by the United Buyers Corporation. It is also alleged that discounts were passed on to the individual respondent buyers in the form of dividends upon the shares of stock which they own in the United Buyers Corporation, all of which, it is charged, violates Section 2 (c) of the Robinson-Patman Anti-Price Discrimination Act.

The complaint against Quality Bakers of America and others also involves the brokerage sections of the Robinson-Patman Act. In this complaint it is alleged that approximately 70 wholesale bakery concerns are members of a wholesalers' association and that the members of this association hold all the stock of a so-called service company, Quality Bakers of America, Inc. This company, it is charged, furnishes services for the members of the association such as production engineering, accounting, sales promotional work and advertising. It also acts as a purchasing agent for the members of the association. It is charged that in the course of these purchasing transactions, the service company receives brokerage commissions or other compensation from the selling concerns. These monies, it is alleged, in reality are passed on for the benefit of members of the wholesalers' association, one-half being retained by the company to defray the expenses of the various services it furnishes and the other half being distributed to the individual members of the association as patronage divi-

Note: J. C. Spence and Henry L. McIntyre of the Chicago law firm of Robertson, Crowe and Spence have prepared the accompanying information on the latest developments under the Robinson-Patman Act, in collaboration with our Washington correspondent.

UNDER THE R.-P. ACT

Present Status of Price Legislation

dends in proportion to the purchases made by it. The complaint charges that because all of the stock of the service company is owned by the members of the association that no services connected with the sale on which brokerage fees are paid have been rendered the sellers either by the service company or by the association. The complaint also charges the selling concerns with violation of the Act because they have paid fees to the service company and also to the members of the association.

A most recent complaint is the one issued in the matter of E. B. Muller & Company and Heinr. Franck Sons, Inc. It is alleged that these two companies are owned by a man and his wife and their two sons and that the two companies dominate the market for raw chicory. The count in the complaint charging violation of the Robinson-Patman Act alleges that these companies discriminate in price between the different purchasers of granulated chicory of like grade and quality. And in addition that the E. B. Muller & Company is granting allowances and paying rebates to certain favorite purchasers in addition to the price discrimination. The discriminations in price are not itemized in the complaint, but it is charged that their effect has been and may be substantially to lessen, injure, destroy or prevent competition between these two concerns and their competitors in the manufacture, sale and distribution of granulated chicory, tending to create in these respondents a monopoly in that business. Further, it is charged that the effect may be to injure, destroy or prevent competition in the use, consumption or resale of granulated chicory between those customers of respondents who receive the lower prices. All these acts constitute a violation of Section 2 (a) of the recent Robinson-Patman Amend-

(Continued on Page 165)

What the Courts Have Decided

Timely answers to problems which face business are presented here

CAN local businesses be protected from outside competition by state laws or town ordinances? Apparently not to any great extent, according to a recent decision handed down by the Court of Appeals of Maryland.

There, it appears that a Maryland town passed an ordinance prohibiting solicitors and other transients from soliciting orders and selling merchandise within the town limits unless licensed by the town. The same ordinance exempted representatives of local business houses from the license requirement.

A solicitor for a merchandising company located in the District of Columbia undertook to solicit orders in this town and was arrested by the local authorities. He was informed that he and all other representatives of the merchandising company would be arrested on every occasion on which they attempted to serve old customers or secure new ones in the town.

Deciding the case in favor of the outside merchandising company and its representative, the court said:

"The ordinance is void because it discriminates against a non-resident in favor of the resident business, and this violates the fourteenth amendment of the Federal Constitution. If the local merchant, in response to whose complaint such ordinances are passed, would be rid of such competition, he must submit to the same penalties,

Note: This article is presented for the purpose of showing the application of legislation to general problems. It should be emphasized that this material does not attempt to answer specific questions which have not been decided or which are to be decided. It is not an effort to determine how the courts might rule.

burdens and conditions as he would have imposed on the intruders."

The court referred to numerous cases along the same line in other states, indicating that local laws intended to exclude outside competition, particularly from another state, are not likely to hold water (Jewel Tea Company vs. Town of Bel Air, 192 Atlantic Reporter, 417).

MANUFACTURER'S RESALE PRICE

Those relatively new state laws forbidding a dealer to undercut the resale price fixed by the manufacturer have real teeth, as a recent New Jersey case shows. The New Jersey Act was attacked as being unconstitutional, but the highest appellate court of that State upheld the law and in its decision said:

"The law is a mere direction to a resident merchant that he must not resell trade-marked or branded articles at less than the price fixed by the producer or owner of such marked commodities. If the merchant would profit by the good will built up by the owner or producer, he must comply with the requirements of the statute. He may remove the mark or brand and sell the goods he owns at his own price, but he must not utilize the good will of another without complying with the statute which brands as unfair the sale of identified goods at less than the price fixed by the producer."

The court referred to the decision of the United States Supreme Court upholding the Illinois statute to the same effect and pointed out that a similar law in New York has been approved by the courts. "The intent of the law," commented the court, "is not to prevent a resale of merchandise but a destruction of the producer's good will often established at great cost."

Forty-two of the states have now passed statutes of this kind (Johnson and Johnson vs. Weissbard, 191 Atlantic Reporter, 873).

Business men hoping that the Federal gasoline tax and the so-called nuisance taxes would end on July 1, 1937, the date specified in the law, had their hopes dashed when Congress adopted a joint resolution extending these taxes for another two years. This was accomplished by striking out "1937" in the existing law and inserting in its place "1939." This extension was just about within the time limit. It was approved by the President on June 29, 1937, just two days before these taxes were due to expire.

ONE SIDED CONTRACT

A manufacturer is reported to have made a contract with a distributing concern whereby the distributing organization became the sole channel of distribution for certain of the manufacturer's products. Both parties were corporations and the contract provided that it was to be effective as long as both corporations existed.

The distributing company, however, was to have the right to end the contract by giving notice to the manufacturer; but the manufacturer was not given the right so to end the contract. In a subsequent lawsuit between the two companies, it was urged that the contract was not binding because of this inequality in the rights of the two contracting parties.

Dismissing this point, the court said:

"It is argued that the agreement lacked mutuality. This is not so. What is meant is that one party had the privilege of ending the contract on notice while the other did not have the same right. Stated in another way, the obligations of the parties were not commensurate. These parties, both business concerns, agreed upon this element of the contract and it suited them. Certainly we may not say it was unreasonable."

This decision simply states the common sense principle that a business contract may be binding and effective even though it be one sided and seems unduly to favor one of the parties to the contract (Phoenix Hardware Company vs. Paragon Paint and Varnish Company, 192 Atlantic Reporter, 45).

CONDITIONAL SALE

Buying or selling on conditional sale contracts raises some difficult questions when installment payments are not met. Recently a seller of equipment on a conditional sale contract sued to recover the equipment because, after making the down payment, the buyer failed to keep up the installment payments. In the suit the buyer contended that the installment payments had not been paid because the seller had not delivered all the attachments and appliances for the operation of the equipment.

The court found that the equipment could actually be operated without these additional attachments and that the value of the extra appliances was trifling compared with the value of the equipment as a whole. The seller was therefore allowed to get back the equipment.

That a similar case might readily be ruled the other way is indicated by the fact that in this case a strong dissenting opinion was filed by one of the judges (Tacoma Beauty and Barber Supply Company vs. Hastings, 67 Pacific Reporter, second series, 325).

FIRE INSURANCE

Is your fire insurance coverage really as much as you think it is? The owner of a building who thought he had fire insurance for $4,200 discovered, when a fire occurred, that actually $1,000 of the coverage was ineffective.

This policy for $1,000 contained a provision that all the fire insurance on the building, including the $1,000 policy, should not exceed $2,800. Actually, this $1,000 policy brought the coverage up to $4,200.

When the fire insurance company declined to pay the loss on the $1,000 policy, the owner of the burned building sued. The court pointed out, however, that, from a legal point of view, the policy had never been in effect at all, because it was inoperative under its terms, if the total insurance exceeded $2,800. The insurance company was directed to refund the premium paid for the policy, but return of the premium was all the owner of the building did receive.

Insurance companies do not overinsure buildings and stock if they can help it. The effect of this is that so long as there is no loss, the owners continue to pay premiums on policies for more than the insured buildings and merchandise are worth. If there is a loss, at least some of the coverage may be absolutely ineffective as in the case just described (Quesenberry vs. National Fire Insurance Company, No. 29973 Supreme Court of Nebraska).

"Cleveland is less than an overnight journey for half the population of the United States. This fact . . . . encourages the national association in the belief that the 1938 Convention will break all attendance records . . ."

The Center—*Cleveland in 1938*

All eyes look to Ohio city for next convention of National Assn. of Master Plumbers

AFTER an exhaustive study of the facilities offered by various cities, Pres. L. J. Kruse, with the concurrence of the board of directors, has announced that the 56th Annual Convention of the N.A.M.P. will be held in Cleveland, Ohio, on June 6, 7, 8, 9, 1938.

The convention sessions will be held in the Cleveland Public Auditorium. The Hotel Cleveland will be the Headquarters Hotel and the Hotel Statler will be an official Hotel. The 1938 Home Comfort Exposition, held in conjunction with the 56th Annual Convention, will be housed in the Cleveland Public Auditorium.

Cleveland is less than an overnight journey for half the population of the United States. This fact, plus the unusual facilities offered, encourages the national association in the belief that the 1938 Convention will break all attendance records for the fifty-six years of our association's existence.

LARGE ATTENDANCE EXPECTED

So confident is the N.A.M.P. of a large attendance, that the display facilities offered to prospective exhibitors for the 1938 Home Comfort Exposition exceed, both in number and extent, the facilities offered at the note-

worthy Atlantic City Convention, held in May of this year.

All of the activities of the 1938 Convention will center around the Cleveland Public Auditorium. This arrangement will assure delegates all of the convenience possible, and at the same time assure exhibitors of a large and interested attendance of members of the trade.

HOME COMFORT EXPOSITION

An extensive advertising and publicity campaign will be launched to induce as many as possible of Cleveland's 900,000 inhabitants to visit the 1938 Home Comfort Exposition. It is believed that the convention and the exposition will have a marked and lasting effect on the population in the Cleveland trading area and will undoubtedly result in an intensified public appreciation for the latest developments in plumbing and heating equipment.

There are many interesting spots to visit in Cleveland. Cleveland's Mall is one of the most ambitious undertakings ever attempted. This plan of grouping public buildings around a spacious seventeen acre downtown garden spot represents an investment of more than $40,000,000. The Mall, which overlooks Lake Erie and extends into the heart of the business district, is made up of seven great buildings. America's best equipped convention plant, the $15,000,000 Public Auditorium, The Federal Building, the Public Library, and new Board of Education Building, City Hall, Cuyahoga County Court House, and the new Municipal Stadium. The Mall with its beautiful landscaping presents an unequaled example of civic accomplishment.

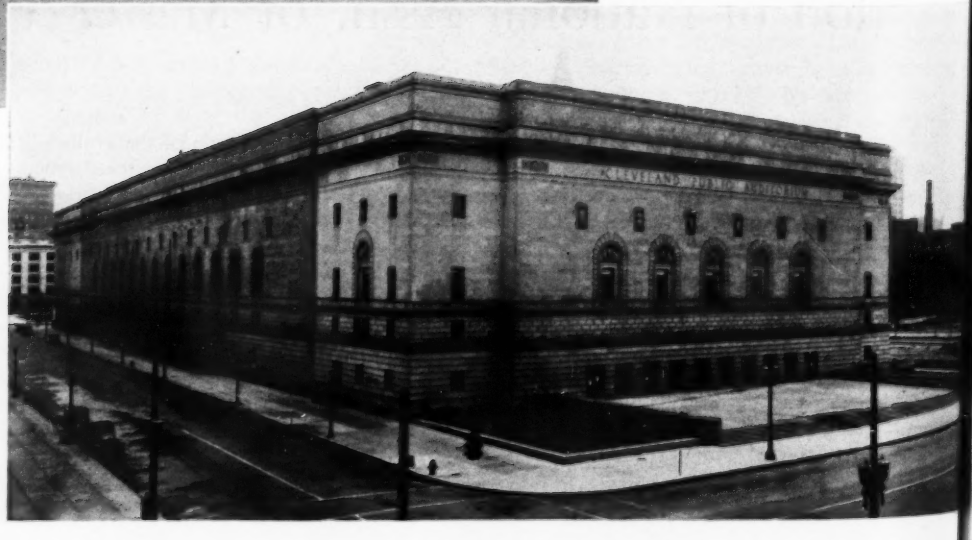
The Cleveland Museum of Art is one of the most beautiful museum buildings in America. The equipment for handling and preserving its treasures has no superior. Through its cooperation with the city's schools and colleges, the museum has become an essential factor in the educational life of Cleveland. The museum's exhibits have been selected for their high quality and the collections are made up of the finest objects procurable and chosen with definite regard for their educational value.

The Museum of Natural History has displays of Ohio birds, specimens of fossil fishes 400,000 years old, insects, African, Indian and Eskimo material and a number of natural habitat groups. One of the most interesting collections in the museum is from the Blossom Expedition to the South Atlantic Ocean in 1925-1926. The Schooner Blossom during its two and a half year cruise of exploration crossed the Atlantic four times, traveled 20,000 miles, touching three continents and many scores of little known, scientifically rich islands.

Other things to see are the airport — one of the largest in the world—the parks, the magnificent boulevards, the lake front. Cleveland has many inducements to add to the Convention itself.

Details of the Convention and Exposition will be given from time to time as plans develop.

The view at the left shows the exhibit hall. The display facilities offered to prospective exhibitors exceed, in number and extent, those which were offered at the Atlantic City Convention



At the right is the Cleveand Public Auditorium which houses the exhibit hall. Convention sessions for the 56th Annual Convention will be held in this building on June 6, 7, 8 and 9, 1938

Standards...

Chicago adopts set of minimum design requirements for comfort air conditioning installations. Chairman discusses provisions

John Howatt

"WHEN a committee was named to draft air conditioning standards for comfort for the Chicago territory in 1935, it was with the understanding that the committee would be a live committee whose work could never be ended as long as there was growth and development in the air conditioning industry. Standards must conform to the best known practice of the times. Research and experience develop the need of new practices and changes and improvements in the old. The standards of 1935 therefore were reviewed and revised in 1936 to meet the changes that application for one year had shown to be advisable. They have now in 1937 been revised again to incorporate the best thought in comfort air conditioning of this time. As further developments are made further revisions of the standards to incorporate those developments will be made also.

"The need for standards that are acceptable and usable still exists. Standardization of performance, standardization of definition and standardization of what is understood by the term air conditioning is the only known safeguard against unfair competition among manufacturers and contractors and provides the only assurance that the consumer will receive what he understands he is purchasing. Most disagreements come from a lack of understanding. No lack of understanding in the purchase and installation of air conditioning systems will come when complete workable standards in that field are thoroughly understood by all parties and are made effective.

"Air conditioning will never reach the wide applications its merits justify without the good will and confidence of the public and good will and confidence can be maintained only when air conditioning installations perform up to the expectations of the purchaser. Use of standards of design and performance will tend to bring about this result.*"

*Statement by John Howatt, chairman, the Chicago Committee on Air Conditioning Standards.

MINIMUM REQUIREMENTS

All branches of the air conditioning industry have recognized the necessity for standard minimum requirements that they would endorse, to eliminate as far as possible, the confusion that has been created in the mind of the public by the wide variation in capacities of equipment and facilities offered for specific problems of air conditioning.

These standards for comfort air conditioning are the result of deliberation of a committee, each member of which represented a different technical group or association interested in air conditioning, as follows:

American Society of Heating and Ventilating Engineers (Illinois Chapter),
The American Society of Refrigerating Engineers (Chicago Section),
Chicago Assn. of Consulting Engineers,
Chicago Master Steam Fitters' Assn.
Illinois Society of Architects,
The Refrigerating Machinery Assn. (Chicago Section),
Ventilating and Air Conditioning Contractors Assn. of Chicago, and Western Society of Engineers.

These standards may be revised from time to time as further research and progress in the industry indicate such revisions to be desirable.

A supplement contains explanations and suggestions for engineers who are interested in designing systems that comply with these standards. This supplement may be secured on application to any of the organizations listed in the foregoing.

1. **PURPOSE, SCOPE AND LIMITATION**—These standards are intended to set forth minimum application design requirements for comfort air conditioning in Chicago and are not to be construed as limiting good practice nor preventing progress in the art. They are intended to be ap-

plied only to ventilating system provided with mechanical air circulation.

2. DEFINITION OF AIR CONDITIONING—For the purpose of these standards, air conditioning is deemed as the process by which the temperature, moisture content, movement and cleanliness of the air in enclosed spaces intended for human occupancy are maintained and controlled within definite required limits.

Note:—For the purposes of public protection these standards recognize apparatus which performs:

(a) All of the above functions in winter (i. e. heating, humidifying, air cleaning and air motion).

(b) All of the above functions in summer (i. e. cooling, dehumidifying, cleaning and air motion).

(c) All of the above functions in all seasons (i. e. heating, cooling, humidifying, dehumidifying, cleaning and air motion.)

If an installation does not perform all of these functions it shall be called by a name which describes only the function or functions performed.

3. MINIMUM STANDARDS FOR REFRIGERATION APPARATUS—shall conform with the current issue of the Refrigeration Data Book, American Society of Refrigerating Engineers.

4. MINIMUM DESIGN TEMPERATURE FOR HEATING—shall be minus 10 deg. Fahr. d.b. outside and 70 deg. Fahr. d.b. inside.

5. MINIMUM DESIGN HUMIDITY FOR HEATING—shall be not less than 35 per cent at 70 deg. Fahr. d.b. inside.

6. MINIMUM DESIGN TEMPERATURE FOR COOLING—shall be considered always in connection with the relative humidity. The plant shall be designed to cover both of the following conditions:

(a) Outside 95 deg. Fahr. d.b. and 75 deg. Fahr. w.b.; Inside 80 deg. Fahr. d.b. and 67 deg. Fahr. w.b. (50 per cent r.h.)

(b) Outside 80 deg. Fahr. d.b. and 75 deg. Fahr. w.b.; Inside 78 deg. Fahr. d.b. and 66 deg. Fahr. w.b. (52 per cent r.h.)

Design interior temperatures which will produce an interior relative humidity of between 30 per cent and 70 per cent as determined from the comfort chart of the Guide, A. S. H. V. E. may be substituted for the foregoing interior design temperatures.

7. DESIGN COEFFICIENTS FOR HEAT TRANSFER THROUGH CONSTRUCTION BARRIERS AND FOR HEAT GAINS FROM PEOPLE OR APPLIANCES—shall conform to the standards recommended by the current issue of the Guide, American Society of Heating and Ventilating Engineers.

8. INFILTRATION AND LEAKAGE—Design capacity to compensate for infiltration of air from outside shall be provided in all systems in accordance with the latest issue of the A. S. H. V. E. Guide. Infiltration allowance for revolving and swinging doors shall be in accordance with the tabulation in the supplement. If the rate at which air is specified to be removed by positive means from the enclosure, exceeds the estimated infiltration rate, use the greater value.

9. DESIGN LOAD CALCULATIONS—(a) For winter air conditioning shall include allowance for heat loss through:

(1) Physical barriers such as walls, doors, windows, ceilings, floors, etc.

(2) Outside air for ventilation by mechanical means.

(3) Infiltration.

(b) For summer air conditioning shall include pertinent allowances for heat gain from the occupied zone through:

(1) Physical barriers such as walls, doors, windows, ceilings, floors, etc.

(2) Outside air for ventilation by mechanical means.

(3) Infiltration.

(4) Solar heat.

(5) Heat and moisture from occupants.

(6) Heat and moisture from products, appliances, illumination, combustion, etc.

The basis of all of these allowances shall conform with the coefficients in the current issue of the Guide, American Society of Heating and Ventilating Engineers, except where these standards give other specific requirements.

10. DESIGN ALLOWANCE FOR SHADING FROM SUNSHINE—shall be made only when the plans and specifications specifically show such allowance, and when they give assurance that the owner is cognizant of the reduction in capacity on this account.

11. OCCUPANCY—The assumed number of occupants within the enclosure shall be a stated number as designated, or the occupancy stipulated under the Chicago municipal code, whichever is the larger.

12. DESIGN AIR QUANTITY FOR VENTILATION—The design air quantity for ventilation shall in no case be less than the requirements of the Chicago municipal code.

13. DESIGN AIR QUANTITY FOR COOLING—The design air quantity for cooling shall be not less than:

(a) That required for conveying the sensible heat load.

(b) Summer air conditioning not covered by the Chicago municipal code when refrigeration or other cooling equipment is used, shall provide for the mechanical introduction of at least 10 c.f.m. of outside air per stated occupant. For restaurants, beauty parlors, rooms with heavy smoke and other rooms with special sources of contamination, this air quantity shall be increased to a minimum of 15 c.f.m. per stated occupant.

14. DESIGN DUCT CAPACITY—The basis of design for equipment, air volumes, duct work and outside air connections shall be not less than the requirements of the Chicago municipal code.

(a) The inlets, outlets and ducts shall have sufficient capacity to permit the introduction of 100 per cent of the design air quantity from the outside and the escape of a corresponding quantity.

(b) Dampers shall be installed in each branch duct.

15. DESIGN AIR DISTRIBUTION—shall be such that:

(a) There shall be no mechanically produced air velocity within the occupied zone exceeding 50 lin. ft. per minute.

(b) The difference between the temperature of air currents in the occupied zone and the average temperature of the occupied zone shall not be greater than as shown below for the various air current velocities.

Air Current Velocity Lin. Ft. Per Min.	Temperature Difference Current deg. Fahr. Average deg. Fahr. Minus
40 and over	2
Less than 40	3

(c) The temperature of the air measured at a point 24 in. or more distant from heat transmitting surfaces, shall not vary in excess of 3 deg. Fahr. between any two locations at the same distance above the floor, within the occupied zone.

Note:—Nothing herein shall be taken to prevent use of deflectors, diffusing grilles, nozzles and the like with comparatively high velocity air currents above the occupied zone.

16. DESIGN AIR CLEANING—The capacity of air cleaning equipment shall be sufficient to clean air volumes equal to 100 per cent of the fan capacity.

(a) Provision shall be made to clean the entire air stream including both the fresh air and the recirculated air.

(b) Air velocity through mechanical and stationary filters shall not exceed the velocity recommended by the National Assn. of Air Filter Manufacturers.

17. DESIGN INTAKES AND OUTLETS—Outside air intakes and exhaust air openings to outside shall be located in acordance with the rulings of the board of health of the City of Chicago and should be equipped with shut-off dampers, screens and protective devices against rain and snow.

18. REFRIGERATING APPARATUS AND REFRIGERANTS—All refrigerating and cooling equipment, piping and specialties used in connection with air conditioning shall be designed and installed in acordance with the requirements of the City of Chicago.

The following are minimum acceptable capacities for vari-

(Continued on Page 176)

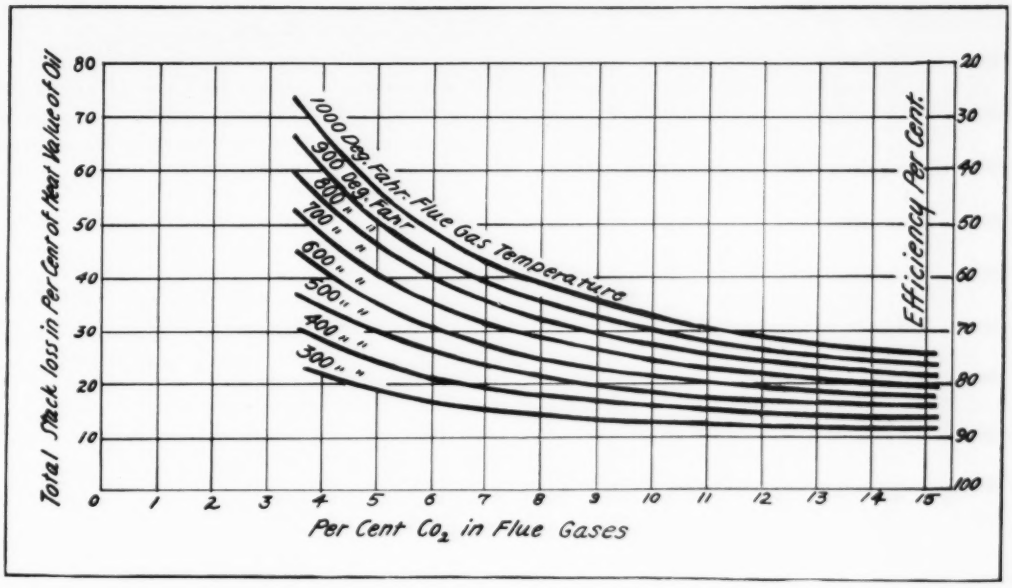


Fig. 1—". . . this graph is true provided that combustion is complete and will be found very handy in determining the meaning of the results obtained by the Orsat apparatus and by the stack thermometer"

"Dope"—*For Practical Men . . .*

Oil burners and fundamentals of combustion are discussed in this article

THE author, Richard E. Nest, says, "To many this article may seem extremely elemental with little information for those who want practical 'dope.' Unfortunately, the simple things cause the most trouble and are the hardest to detect. Each individual owner of an oil burner is vitally interested in economy. The industry as a whole is interested in customer satisfaction in that the best sales story ever told is the one told by Mr. and Mrs. Satisfied Public. The service man that adjusts the burner is the only one that can stack the cards. The finest design ever produced and the most comprehensive manual ever published won't save a plugged nickel if the heat goes up the chimney just the same."

THIS review of the elementary principles of combustion as applied to oil burners is presented as an aid to dealers and service men who wish to keep abreast of the most recent practices and as a review of those underlying principles which must be understood if combustion problems are to be treated scientifically.

Domestic fuel oils are carefully distilled fractions of petroleum, refined to meet specific regulations and are generally designated by number as 1, 2 or 3. The smaller the number, the lighter the oil and, generally speaking, the higher the cost. Usually a No. 3 oil is the heaviest considered practical for domestic heating purposes.

Fuel oils are liquid hydrocarbons combined with very small percentages of other elements. The major, useful portion, as the name hydrocarbon implies, is a chemical combination of hydrogen and carbon. Note that we say chemical combination because carbon under atmospheric conditions is a solid and hydrogen is a gas, and only by chemical means can the two be combined to form a liquid. The approximate proportions are carbon, 84 per cent; hydrogen, 13 per cent; oxygen, nitrogen, sulphur and foreign matter 3 per cent, by weight.

Combustion, within the scope of this discussion, is the chemical combining of the carbon and hydrogen of the oil with oxygen of the air to produce heat and the gaseous products which go up the stack. Under proper conditions the hydrogen of the oil combines with oxygen from the air to produce water in vapor form. During this process heat is liberated. Likewise the carbon unites with oxygen to form carbon dioxide, and this process also liberates heat. Any sulphur present also

will combine with oxygen to produce sulphur dioxide. Of these three reactions, however, the union of carbon and oxygen to give carbon dioxide is by far the most important as a producer of useful heat. The heat evolved by the reaction of the hydrogen and oxygen is of minor importance since much of this heat is absorbed by the water vapor as latent heat. This latent heat can only be recovered by condensing the vapor, a process which is not practical under normal conditions of combustion. See Fig. 2.

The oil is introduced into a combustion chamber through some flow controlling device. An electric spark, gas pilot or combination of both raises the temperature of the oil until a part of it is vaporized and ignited. Air in controlled amounts is supplied to the burning oil vapor, and active chemical combination or combustion continues so long as the ignition temperature and other conditions are maintained. Generally the heat of the resulting flame, once established, is sufficient to carry on the reaction and the original ignition means may be discontinued.

COMBUSTION RESULTS

Many divergent means for burning oil have been evolved to the end that practically any of the good conventional methods as now provided produce relatively slight differences in results as regards combustion. The important factors to consider are, therefore, initial cost of manufacture, simplicity of installation and operation, freedom from mechanical difficulty, cleanliness and quietness of operation. It might be said here that the method of supplying the air for combustion, especially with fires of from ½ gallon per hour to 2 gallons per hour, is the most important consideration regardless of the type of burner—rotary, pressure atomizing, vaporizing or any combination thereof.

Correct regulation of air volume for oil burners depends upon a chemical law called the law of definite proportions. Reduced to commonplace terms, this means that each volume of vaporized oil will combine under combustion conditions with one certain volume of air—no more and no less. If the volume of air is deficient some of the oil vapor will remain unburned and will be wasted. On the other hand, if too much air is provided, the combustion process will utilize only a part of it, and the remainder will absorb heat and carry it out the stack. Thus it will be seen that correct regulation of air volume is of paramount importance to efficient oil burner operation. A roughly correct adjustment of air volume may be obtained by varying the air adjustment until a clear, smokeless flame of maximum size is obtained, but accurate regulation for greatest efficiency can only be accomplished by measuring the stack temperature and the percentage of carbon dioxide (CO_2) in the products of combustion.

That we may obtain oxygen for combustion economically, we are compelled to use air, of which approximately 76 per cent by weight is nitrogen and 23 per cent is oxygen. Nitrogen is of no value in combustion and, since it must be heated to the temperature of the stack gases, represents a loss of heat. According to the chemical law of definite proportions, we find approximately 14 lb. of air are required to burn completely 1 lb. of fuel oil. It is not practical to use theoretical air requirements, however, so air in excess of these requirements must be supplied. The general practice calls for an adjustment which will produce clean fires with approximately 15 to 50 per cent excess air which is equivalent to 13 per cent to 10 per cent CO_2 respectively. This means that 12.9 to 16.7 lb. of nitrogen per pound of fuel are heated to the discharge or stack temperature. Such a loss together with the loss due to absorbtion of latent heat by the water vapor formed is usually termed "unavoidable loss".

CAUSES OF INEFFICIENCY

The causes of inefficiency in an oil fired heating plant are many but assuming that the heating equipment and burner are properly proportioned the most common is too much air. As shown above, excess air indicated by a lowered CO_2 concentration, increases the weight of the stack gases. Since more gas is passing through the boiler per unit of time, less heat is absorbed by the boiler. The result of such an increased gas velocity, in the average boiler, is a proportionate increase of stack temperature. Therefore, while heating more gas we also increase its discharge temperature.

To determine burner efficiency in the field we generally use the indirect method. This consists of determining the percentage of CO_2 in the stack gases and their temperature. Assuming that the burner is set for the proper oil rate according to the heating load, we may by means of published curves readily determine the approximate efficiency.

A nitrogen filled thermometer reading to approximately 1,000 deg. Fahr. may be used to determine the temperature of the stack gases. Such thermometers

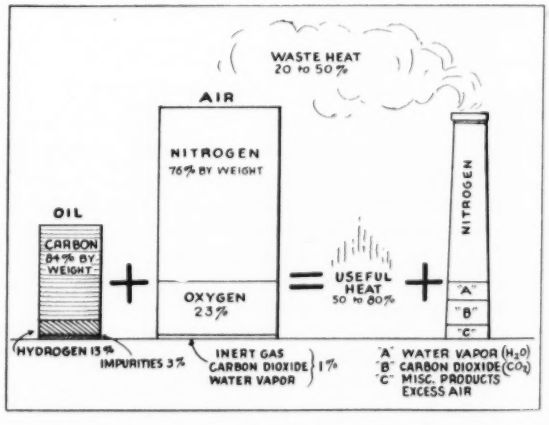
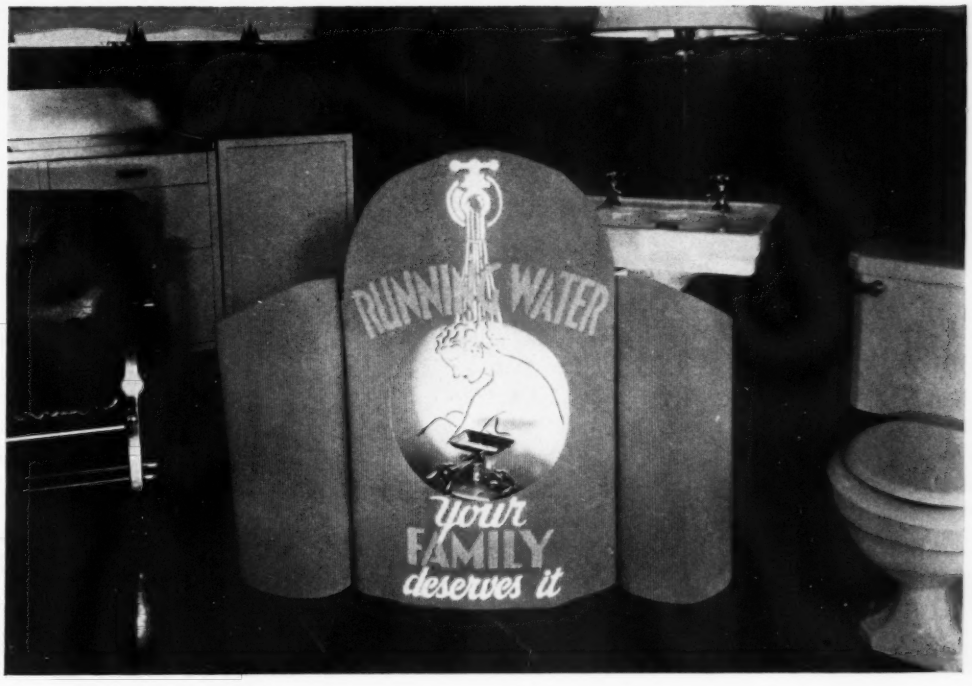


Fig. 2—This chart portrays diagrammatically what happens when oil and air combine to produce heat. It should be mentioned that the efficiencies indicated are merely for illustration

usually are graduated in 5 degree increments and are incased in a metal jacket. A hole is provided in the smoke pipe, large enough to accommodate the thermometer, at a point conveniently near the boiler thimble. Such a location should be selected as will insure the following conditions: an unimpaired gas flow, proper thermometer immersion and, most important, it must be well on the boiler side of any openings such as draft adjust-

(Continued on Page 119)



The running water display which is illustrated here will serve to impress the prospective buyer with the benefits obtained from the use of running water. The use of this display with the equipment you wish to feature, is a powerful sales argument

Gentlemen—*Your Window* . . .

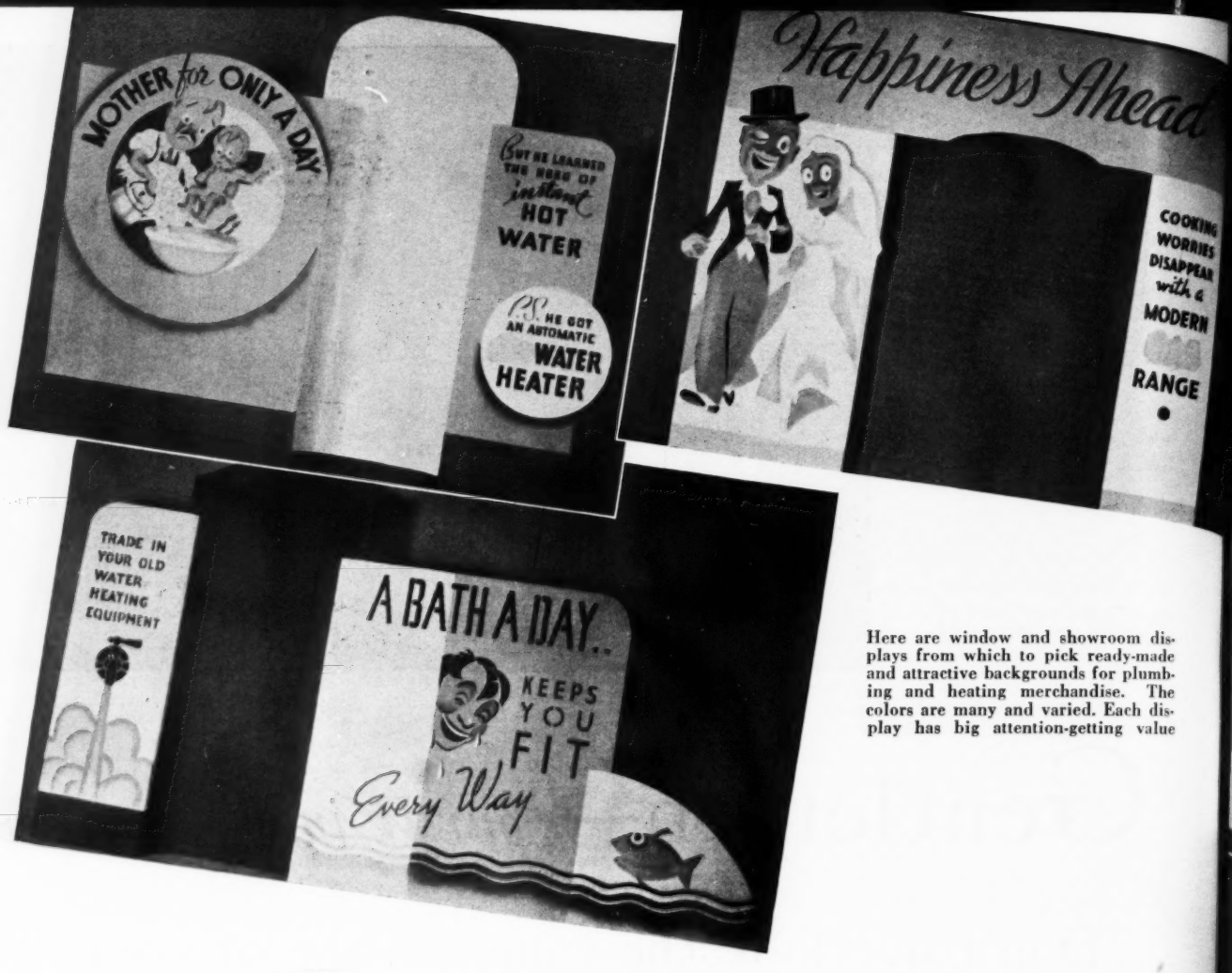
Don't overlook the value of one of your best advertising mediums, your show window

THE selling power of attractive show room and window displays has been too well demonstrated to require further discussion. The characteristics which make such displays effective have been studied in repeated investigations, and it is well known that two characteristics are of outstanding importance. These are color and the "punch" of the message carried.

The displays illustrated on these pages are made up in seven to ten harmonizing colors in the combinations and designs which experience has shown have the greatest visual appeal. In all cases the message is short and concise, the intention being to drive home a single advertising idea in the most forceful manner possible. Some of the displays are seasonal; some are suitable to any season. Some of them constitute an individual display unit, but most of them are designed to be used with some piece of merchandise such as a hot water heater, boiler or range.

Another important consideration in the design of these displays and another reason for selecting short captions is to make these advertisements effective for passing motorists and other vehicle traffic. This is especially important during the Winter months when the proportion of vehicle traffic to pedestrian traffic increases. Furthermore, depending upon the showroom's location, the vehicle traffic is probably richer in prospects than the pedestrian traffic and it is correspondingly more important to get the advertising message to them.

Dealers making use of such displays as are shown here should keep in mind the importance of proper illumination. The finest display may lose most of its value if it is poorly lighted. Inadequate light reduces all color to an uninteresting grey and makes the message difficult or impossible to read. Straight overhead or flat front lighting, even if sufficient in amount is not nearly so effective as single strong light sources from one or both sides. These particular displays are made from a corrugated stock, and show up beautifully under a strong single light far to one side. This idea may be carried one step further and made to introduce a quality of motion in the display. To do this, place a spotlight on each side of the display so that the light hits the main front of the display at an angle of about twenty degrees. Then wire the lights through a rotating switch in such a manner that one of the lights is on for a period of about ten seconds while the other one is out and then they alter-


MOTHER for ONLY A DAY
But he learned the knack of instant HOT WATER
P.S. He got an automatic WATER HEATER
Happiness Ahead
COOKING WORRIES DISAPPEAR with a MODERN RANGE
TRADE IN YOUR OLD WATER HEATING EQUIPMENT
A BATH A DAY..
KEEPS YOU FIT
Every Way

Here are window and showroom displays from which to pick ready-made and attractive backgrounds for plumbing and heating merchandise. The colors are many and varied. Each display has big attention-getting value

nate. In this manner the shadows cast by the corrugations reverse each time the lights change and give a very realistic impression of motion.

During the Winter season with its longer hours of darkness this problem of lighting becomes more important, and the feeling of warmth created by proper lighting adds immeasurably to the attractiveness of the display when Winter winds are blowing outside.

It should be remembered, however, that it is not sufficient to create an attractive display and then forget it for the duration of a season. A goodly proportion of the people who pass your place of business do so repeatedly, and while repetition is sound advertising, it may be carried too far. Don't tire your prospective customers out with one display, but hold their interest by monthly changes in your showroom and window.

The greatest job which a window display has to do, if it is to be effective, is to present its message in a dramatic enough manner to draw attention from the countless other merchandising appeals used to attract customers. Window displays go into a highly competitive field. They must literally fight for attention with signs, show cards, product displays and mannequins. Each merchant does his utmost to draw attention to his products, and in doing so, resorts to every method at his disposal.

Just how important window diplays are regarded by expert merchandisers can be seen in department store activities in this regard. This also presents a valuable lesson to all those who make use of window displays.

A window display and its presentation should be staged just as is a theatre set—to give a definite and predetermined effect. It is for that reason that other factors such as lighting, color and arrangement must be considered.

Orders for any of these displays should be addressed to the editor, DOMESTIC ENGINEERING, 1900 Prairie Ave., Chicago, Ill. Orders will be forwarded to the manufacturer and prompt shipment will be made.

Displays	Prices
Running Water Display	$3.50
Mother for Only a Day	4.50
Happiness Ahead	5.50
A Bath a Day	4.35
Best Cook in Town	5.25
From Basement to Upstairs	5.50
For Hot Water Comfort	4.25
Sick Furnace Display	4.50
Dress by the Radiator	4.50
Good Old Days	4.85
School Days	5.35
Cooking Is Clean..	5.45

A shipping charge of from $0.30 to $0.70 will be added to the above price depending on shipping distance from Chicago.

MY WIFE IS THE BEST COOK in TOWN
WHO COULDN'T BE · · WITH A WONDERFUL NEW RANGE
THIS FAMILY NEVER HAS TO WAIT FOR HOT WATER
FROM BASEMENT TO UPSTAIRS
ALWAYS THERE... ALWAYS HOT
IT COSTS BUT A FEW CENTS A DAY
For Hot Water Comfort...
I've got an Automatic HOT WATER HEATER
Next Winter
DON'T BE A NURSE TO A SICK FURNACE
GET THE FACTS
OUR ENGINEERS WILL GIVE YOU A COMPLETE ESTIMATE AND HEAT SURVEY ON YOUR HOME
NO OBLIGATION
Ask for it
"C'MON BOBBY.. WE'LL DRESS BY THE RADIATOR"
PLEASANTER LIVING for the whole family with RADIANT HEAT
GOOD OLD DAYS-PHOOEY! GIVE ME AN AUTOMATIC WATER HEATER
INSTALL IT NOW!
FOR MODERN HOT WATER COMFORT
SCHOOL DAYS ARE HERE
YOU CAN'T KEEP THEM WRAPPED IN CELLOPHANE
But
YOU CAN HAVE PLENTY OF HOT WATER TO KEEP THEM CLEAN AND HEALTHY WITH THE Automatic WATER HEATER
Come in AND SEE THE MODERN RANGES
GAS COOKING IS CLEAN
IT'S CLEAN QUICK DEPENDABLE ECONOMICAL

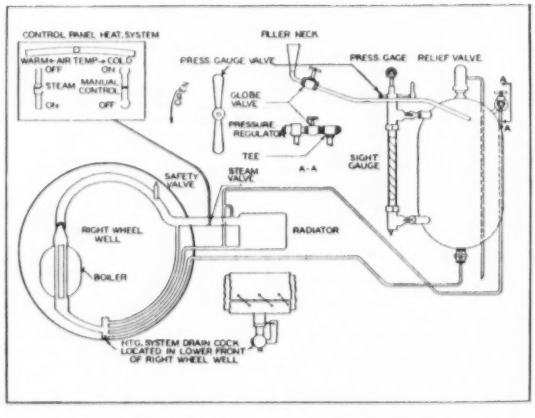
Heatin's Got Wings...

At 12,000 ft. it's cold. Heating, ventilating and ground cooling explained

THE pioneering airplane passengers flying from California to New York in a single engined, two passenger biplane enjoyed none of the comforts which are provided for air travelers today. In fact the trip involved 33 hours or more with fourteen stops along the route. Today the giant 12 ton, 200 mile an hour Mainliners of United Air Lines span the continent in 15⅓ hours with only three stops.

The small cabin on the pioneering planes was poorly ventilated; opening and closing the windows provided the only ventilation. The cabins were noisy, since aircraft engineers knew little or nothing about soundproofing methods for airplane interiors. A crude heating device, attached directly to the engine exhaust provided all the heat that was available. This was often unsatisfactory as exhaust gases would make the passengers air sick and it was necessary to provide heavy blankets for passengers as a precaution against suffering from the cold.

Today the coast-to-coast transports reflect the tremendous advances that have been made to provide accommodations for passengers. Heating, ventilating, air conditioning of planes on the ground, soundproofing and refrigeration are among the most important lines along which progress has been made.

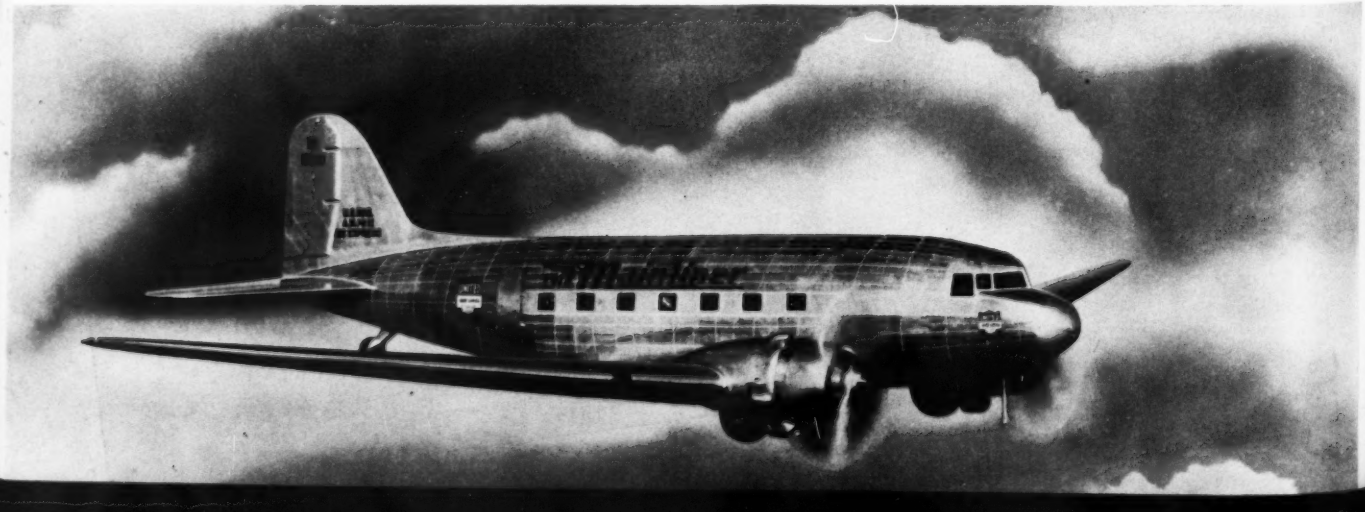


The diagram shown above indicates the location and method of operation for the heating system maintained in these large airplanes. One of these large planes in flight is shown below

AIR CONDITIONING HELPS TRAVEL

A trip across the continent reveals how air conditioning these planes has made air travel more satisfactory. For example, before each plane leaves a terminal, a large truck comes alongside the ship and mechanics attach a 6 in. hose to a special fuselage connection. This truck, in the summer time, is used to keep the plane cool while it is on the ground, and during the winter, keeps the cabin warm during terminal stops.

A fleet of these air conditioning and heating units were built expressly for the purpose of keeping transports at even temperature while they are on the ground, regardless of season. Mounted on a special truck, the unit is brought alongside the plane. The principal part of the unit is a large tank which carries a refrigerant



This view shows one of the sleeper berths made up. Individual ventilation is provided for each berth through small outlet in center

cooled down to minus 40 deg. Fahr. for summer use. A high speed fan on the truck forces the cold air into the cabin and this is circulated through the individual ventilators at each seat or sleeper berth. Use of this unit has revealed that it will reduce cabin temperature from 90 to 72 deg. Fahr. in 12 minutes.

A storage tank where the brine is cooled is located in a special building at the terminals. When a truck tank has been filled, it is carrying enough brine to supply cooled air for 6 hrs. In operation it supplies 1,000 cu. ft. per min.

In the winter, the same brine is heated by a steam coil and circulated throughout the transport cabins in the same manner as the cold air for summer use. United Air Lines uses a total of nine of these refrigerating units —two being located at Newark, Cleveland and Chicago and one at Omaha, Salt Lake City and Los Angeles.

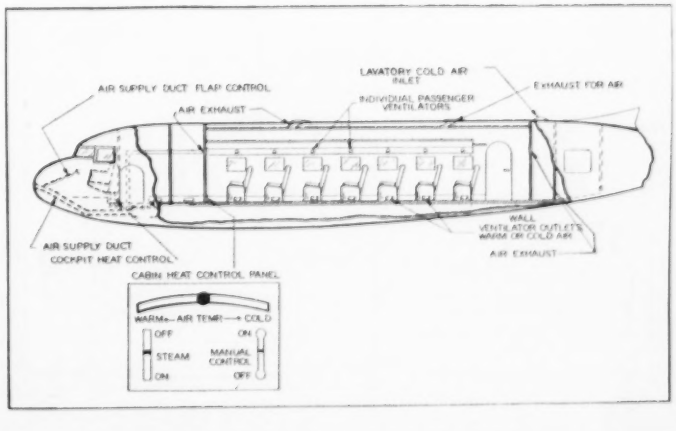
The steam heating system is located in the forward part of the fuselage, between the passenger compartment and the pilots' cockpit. It consists of a steam boiler which is heated by the right engine exhaust. The steam passes through a radiator and is projected through the cabin. Control is manually regulated by the stewardess and it is often necessary to heat during the summer months.

A filter equipped fresh air duct or scoop is located in the nose of each Mainliner and distributes the air to individual ventilators through branch ducts. The flow of fresh air at each seat or in each berth on the sleeper planes can be controlled by the passenger. Since the transports cruise at 10,000 or 12,000 ft. where the air is cool, there is no cooling problem while traveling. However, ground cooling units are important and air conditioning development in the aircraft field will continue along this line.

An examination of the diagram which shows the location of the boiler and radiator will indicate the compact manner in which this heating system was designed. The boiler is located so that heat from the right engine exhaust can be used to generate steam for the heating system. In an airplane, weight is at a premium and it is essential, therefore, that all equipment be designed to occupy as little space and weigh as little as is possible.

The drawing, which is at the bottom of this page indicates the manner in which the various duct lines are run and also shows where the exhaust air ducts are located. There are two exhaust air vents in the ceiling of the cabin and one each in the front and rear cabin doors. In moderately cold weather these vents in the ceiling are closed and those in the front and rear doors are held open. During periods of extremely cold weather it may be necessary to close all of the vents.

The individual passenger ventilators are located at each seat above the windows and are controlled by pulling out the tube, which can be turned, and the air is delivered in any direction desired by the passenger. The ventilators for warm or cold air, which are under the passenger seats, are on a central system of control.



Here is a drawing showing the manner in which heating and ventilating provisions are installed and operated. The same system of ducts is used for ground heating and cooling as well as for ventilation. Engine odors do not enter the plane cabin

Connections—Right and Wrong

Correction of drawing problems and plumbing layout for a school are discussed here

SEVERAL notably poor practices were shown in the drawing problem presented in the July issue of DOMESTIC ENGINEERING. As shown on page 88, these were: connecting the house drain from one house into that of another, connecting the house sewage into a rain leader and connecting refrigerator drainage into the house system.

Probably the most interesting point in this drawing problem is the connecting together of the house drains from two separate houses. There is little question that this is poor practice.

One argument against such practice is that should serious stoppage occur on the house drain of the house in front, or if there are extensive repairs or replacements, the plumbing system of the house in the rear becomes involved.

J. M. S., New York, who submitted Fig. 10, states that his elevation is made according to the plumbing code of New York City, including pipe sizes. He also states that installation of a cellar drain under that code is allowed only by special permit from the commissioner. Connection of the cellar drain and rain leader together, as shown, should be considered correct, for both serve the same kind of drainage.

Refrigerator branches should be supplied with a trap, although it is true that some plumbing codes allow the trap to be omitted when the line of refrigerators is otherwise connected up in the manner shown in Fig. 10. It goes without saying that in all house sanitation there is no more vital need of protection than for the refrigerator or ice box. Such a receptacle contains food and drink, and in the maintenance of health it is necessary that food and drink be kept free from every form of contamination. While the main refrigerator line passes through the roof and has an indirect connection into the drip sink in the basement, thereby allowing a free circulation of air, unless each refrigerator branch has its own trap, cellar air may pass through the branch. In most cases where the main trap is used, it is not considered necessary to trap the rain leaders.

Fig. 10 shows the kitchen sinks and wash trays served by the same trap. Many plumbing codes allow this practice, but perhaps a better method is to use separate traps, as seen in Figs. 5 and 11. However, we believe that there is seldom a situation in which one trap can serve two fixtures as effectively and satisfactorily as one trap can serve one fixture.

Fig. 4, by E. J. T., New Jersey, is a very good layout; there are a few minor criticisms.

What has been said concerning refrigerator connections, applies to this installation, for it will be noted that the refrigerator branches are without traps.

While it is entirely correct and sanitary to give the kitchen sinks and the wash trays a single trap for

Fig. 4—Submitted by E. J. T., New Jersey. This is a very good layout. There are only a few minor criticisms to be made here

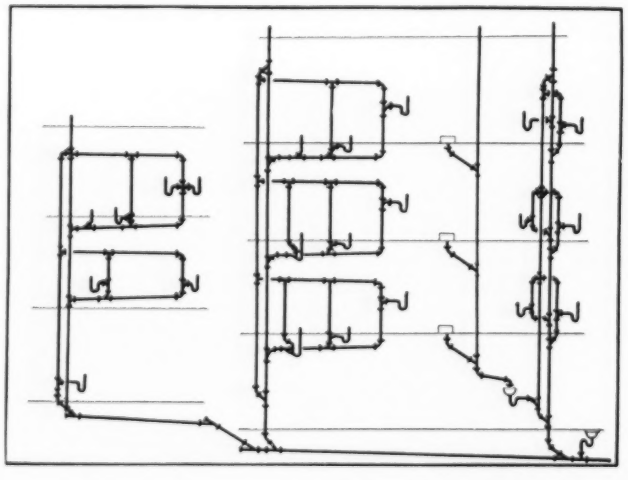
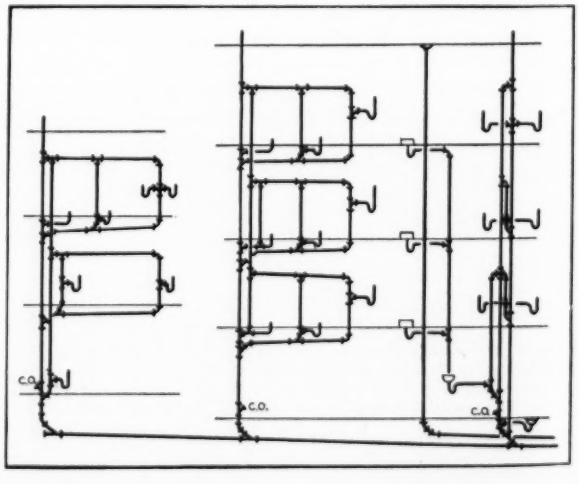


Fig. 5—"the refrigerator stack should pass through the roof . . . the refrigerator drip sink can be vented as is shown in Fig. 11"



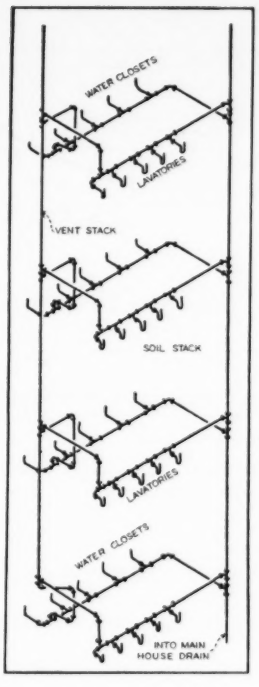


Fig. 1—A study of this drawing will show that circuit and loop venting is used in the venting arrangements

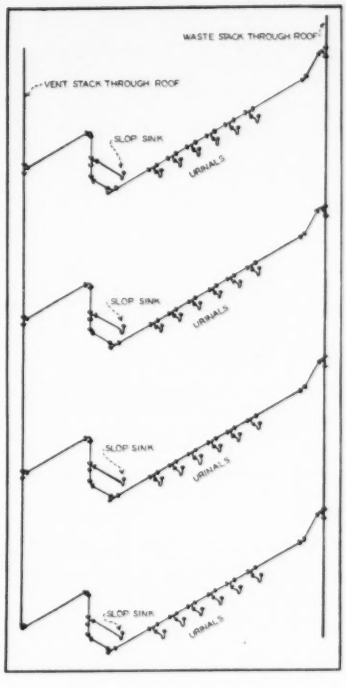


Fig. 2—This isometric view shows the lines of urinals and slop sinks in the wash rooms of the building

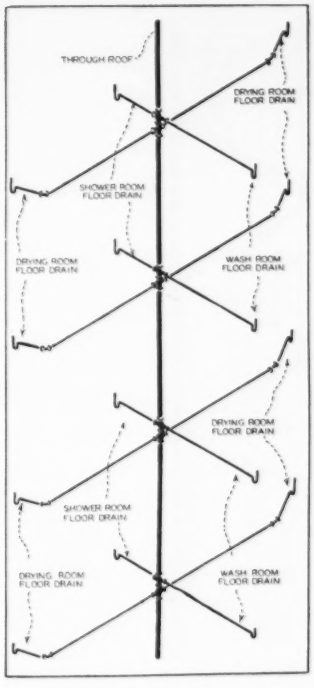


Fig. 3—Indicated here is the manner in which the stack and branches serving the floor drains connect

each fixture, as we have just brought out, the use of the unit vent principle, as seen in Fig. 5, is a distinct saving in expense of construction over the individual vent connections shown in Fig. 4. Also, a saving could be made in the case of the top floor wash traps if stack vented as in Fig. 5.

The work shown in Fig. 5, which is by L. R., Massachusetts, is for the most part, excellent, but the refrigerator stack should pass through the roof. We note that the vent for the refrigerator drip sink is carried up to the first floor. It can be perfectly vented in the simple manner shown in Fig. 11, that is, by connecting into the foot of the main vent stack. The cellar floor drain connects into the foot of the vent stack at a lower point. In Fig. 5 the rain leader is not connected into the drainage system, signifying that house drainage and surface drainage have separate systems, which is good practice.

In Fig. 7 we note what seems to be a crown vent connection on several of the bathroom fixtures in the house at the front, also in the case where one trap is used for the sinks and lavatories. Perhaps this is a mistake in drawing for continuous vents are in use on all other fixtures.

There are no traps on the refrigerator branches. As previously explained, separate traps for sinks and refrigerators would be preferable.

The refrigerator drip sink would be well vented by connecting into the foot of the main vent stack, and omitting the vent connection now in use. There is no real need for venting the cellar drain. Venting is used principally to overcome the danger of siphonage, and as there seems to be no danger of that nature present, we see little need for this vent.

Fig. 11 by E. C. C., Indiana, presents several interesting features. The house at the rear connects its drainage system into the house drain of the other house and a main trap is provided for the rear house,

Fig. 6—This drawing shows the house drain of the house at the rear run separately from the house drain of the front house

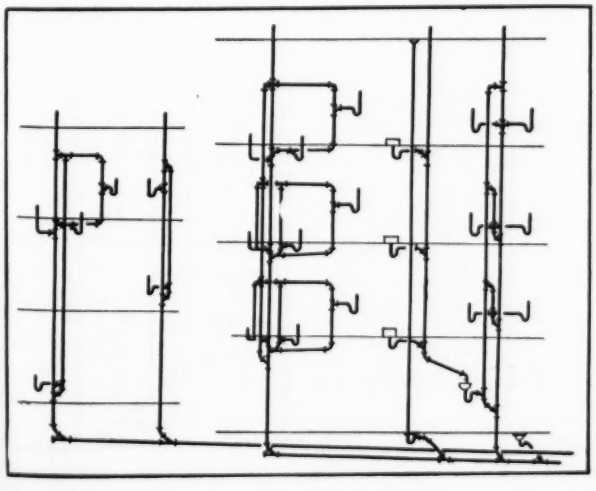
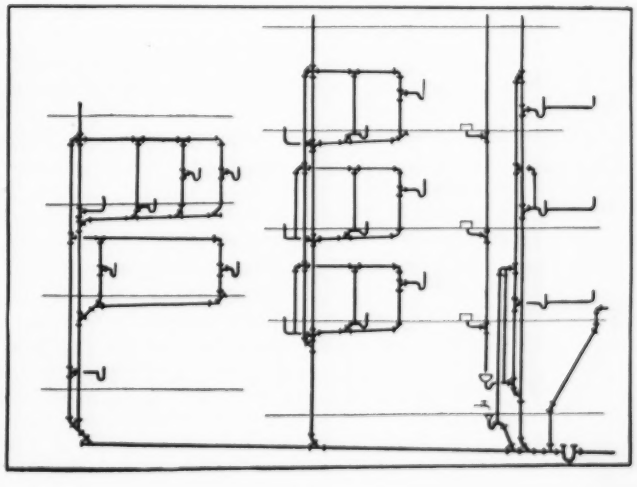


Fig. 7—M. B., New York, submitted this drawing for criticism and suggestion. Bathroom lavatory venting practice is questioned



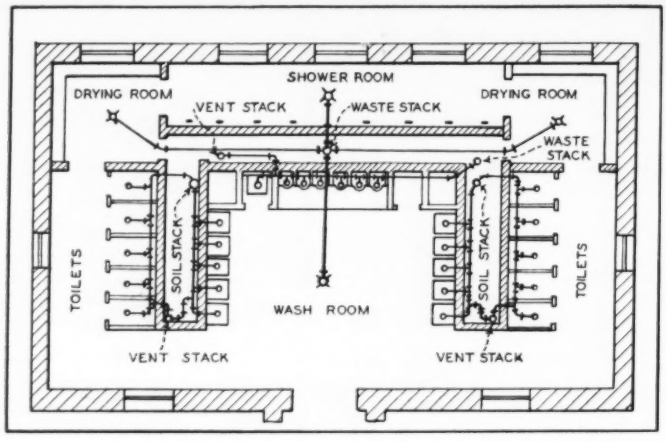


Fig. 8—This drawing shows a floor plan giving the horizontal drainage and venting layout for each one of the four wash rooms

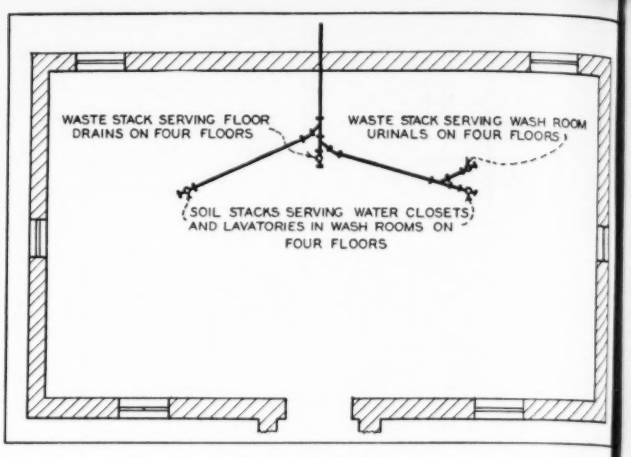

WASTE STACK SERVING FLOOR DRAINS ON FOUR FLOORS
WASTE STACK SERVING WASH ROOM URINALS ON FOUR FLOORS
SOIL STACKS SERVING WATER CLOSETS AND LAVATORIES IN WASH ROOMS ON FOUR FLOORS

Fig. 9—Here is a drawing indicating the arrangement of the horizontal drainage lines as they are located in the basement

even though the other drainage system is so provided. A considerable number of cities still demand this method of connection. None of them however, would countenance the use of a second main trap such as Fig. 11 shows. Use of the second main trap would be without purpose.

Fig. 11 shows refrigerator connections better than any of the layouts thus far studied. The only fault is the long horizontal offset on the refrigerator stack. At best, refrigerator waste is very sluggish, and this horizontal section would clog up in short order.

As elsewhere pointed out, there is no necessity for a rain leader trap when the drainage system is protected by a main trap.

USE OF WET VENTS

Wet vents are to be seen in the front house. Their use is debatable. Some codes permit and others prohibit this practice. We feel that it is safer practice when applied to bathroom plumbing than in the case of kitchen plumbing, because in the latter there is the problem of considerable quantities of grease to contend with.

Apparently Fig. 11 was made in the belief that the lowest water closet on the bathroom stack is vented by the main vent line. In our opinion it is not properly vented, as the connection does not admit air at a high enough point to be effective in supplying air to the water closet trap.

If the bath trap in the rear house were to be turned around it could be stack-vented, thus saving the expense of a separate vent.

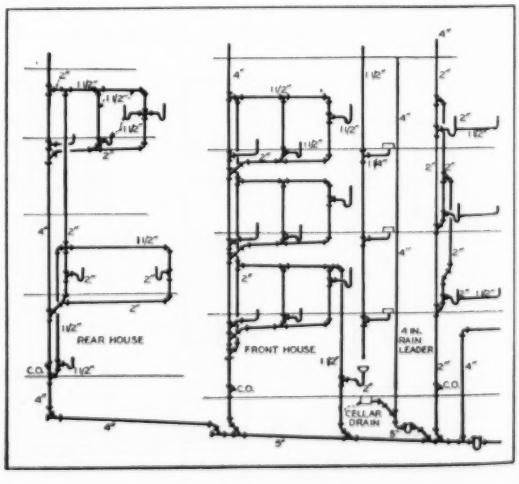
Fig. 6 shows the problem drawing corrected in accordance with general practice. None of the drawings submitted has used two stacks for the rear house. We believe that would be the more natural plan to follow. While there are no floor plans to make the matter definite, it seems to us that the first floor sink and second floor lavatory at the right might most naturally be considered so far removed from the bathroom stack that it would be difficult to run horizontal waste and vent lines crosswise as Figs. 10, 4, 5 and 7 show. Fig. 11 has worked the plan in such a way that no vents would have to be run across. Fig. 6 shows the house drain of the house at the rear run separately from the house drain of the other house, which seems to us the better plan. It would be still more correct if the rear house drain could be carried to the sewer without crossing the land of the front house.

A second problem was presented in the July article, this being Fig. 8, on page 89. Hampton Institute is planning to build a four-story toilet house, each floor of which contains a washroom, shower room and two drying rooms. The work on each floor is identical, shown fully in the above mentioned Fig. 8. As suggested by Mr. Abboud, head of the department, we offered planning of the plumbing for this building as a practical problem to be worked out by our readers who were invited to send in drawings suggesting a desirable installation.

One of the most complete set of drawings has been selected for discussion. This was submitted by E. J. T., New Jersey. Fig. 8 shows a floor plan giving the horizontal drainage and venting layout for each one of the four toilet and wash rooms. E. J. T. has sent us an elevation of each stack, and these are shown according to his layout, rearranging the elevations as isometric drawings. E. J. T. has decided to make a separate system of the floor drainage for the shower rooms, washrooms and drying rooms. The layout for this part of the drainage system is seen in the

(Continued on Page 162)

Fig. 10—This drawing is made in accordance with the code of New York city. The cellar drain and rain leader are connected



58—

Flow of Steam in Pipes

PRESSURE DROP METHOD

In sizing steam pipes by the pressure drop method the following formula is used

$$pd = 0.000131 \left(1 + \frac{3.6}{d_i}\right) \frac{W^2 L}{D d_i^{\,5}}$$

When pd is pressure drop in lb. per sq. in.
d_i is internal diam. of pipe in in.
D is average lb. per cu. ft. of the steam.
W is the weight of steam passed per min.
L is the length of pipe in feet.

Example—
If a 2 in. pipe, 40 ft. long is delivering 26 lb. of steam per min., at an average pres. of 100.3 lb. gauge, what is the pressure drop?
Solution—

$$pd = 0.000131 \left(1 + \frac{3.6}{2}\right) \frac{26 \times 26 \times 40}{0.26 \times 2 \times 2 \times 2 \times 2 \times 2}$$

$$pd = 0.0003668 \times \frac{27040}{8.32}$$

$$pd = 1.192 \text{ lb.}$$

Note—Owing to the amount of calculation necessary in using this formula it is customary to calculate a table based on a single set of conditions and then to use a simpler formula to change the tabular amounts to suit those required by the problem.

59—

Flow of Steam in Pipes

STEAM FLOW TABLE

Flow of steam through pipes with a length of 240 diameters with a drop in pressure of 1 lb.

Gauge Pres. Lb.	Weight of Steam in Lb. per Minute											
	¾ in.	1 in.	1½ in.	2 in.	2½ in.	3 in.	4 in.	5 in.	6 in.	8 in.	10 in.	12 in.
1	1.13	2.04	5.49	9.8	14.8	24.4	45.0	74.2	105	202	329	482
10	1.39	2.54	6.82	12.3	18.5	30.3	55.9	92.3	138	248	409	599
20	1.63	2.98	8.02	14.4	21.9	35.6	65.7	108	163	295	481	705
30	1.84	3.37	9.07	16.2	24.5	40.2	74.1	122	183	333	542	795
40	2.03	3.71	9.95	17.9	26.9	44.2	81.6	135	202	366	596	874
50	2.19	4.02	10.8	19.4	29.2	47.9	88.3	146	219	397	646	948
60	2.35	4.30	11.5	20.7	31.2	51.3	93.7	156	234	424	691	1014
70	2.50	4.56	12.3	22.0	33.1	54.4	100	166	248	451	734	1075
80	2.63	4.81	12.9	23.2	34.9	57.4	106	175	262	475	774	1135
90	2.76	5.05	13.6	24.3	36.6	60.2	111	183	275	499	812	1192
100	2.88	5.27	14.2	25.4	38.3	62.8	116	191	287	520	848	1243
120	3.10	5.69	15.3	27.4	41.3	67.9	125	207	310	562	915	1342
150	3.38	6.26	16.8	30.2	45.5	74.7	138	228	341	619	1007	1477
200	3.88	6.96	19.1	34.3	51.5	84.8	156	258	387	703	1144	1677
250	4.33	7.86	21.1	37.9	57.1	93.7	173	285	428	776	1264	1855
300	4.68	8.56	23.0	41.2	62.1	102	188	310	466	845	1376	2019
350	5.03	9.22	24.7	44.5	66.8	110	202	334	501	908	1478	2168

To change the above to any other conditions use the formula—

$$Q = w \sqrt{\frac{240\, d\, l}{L}}$$

when Q is the new quantity of steam (lb. per min.)
w is the table quantity of steam (lb. per min.)
d is the diam. of the pipe in in.
l is the desired drop in lb. per sq. in.
L is the equivalent length of run in in.

Published by Domestic Engineering.

60—
Flow of Steam in Pipes

USE OF STEAM FLOW TABLE

The application of the table and formula given on Sheet No. 59 is shown in the following problem:

Example—

What weight of steam at 100 lb. gauge will be delivered by a 6 in. pipe, 720 ft. long with a pressure drop of 4 lb.?

Solution—

In the table on Sheet No. 59 a 6 in. pipe at 100 lb. gauge shows a delivery of 287 lb. per minute.

Then, $w = 287$, $d = 6$ in., $1 = 4$ lb. and $L = 720 \times 12$. Substituting in the formula gives

$$Q = 287 \times \sqrt{\frac{240 \times 6 \times 4}{720 \times 12}} \text{ or } Q = 287\sqrt{\frac{2}{3}}$$

$$Q = 287\ \sqrt{0.67} \text{ or } 287 \times 0.82 = 235.34 \text{ lb.}$$

Note—For "equivalent length of run" see allowances for fittings on Sheet No. 67.

Note—For "curves for steam flow" see Sheets 61 to 66.

57—
Flow of Steam in Pipes

VELOCITY METHOD

In sizing steam pipes by the velocity method, the velocity of the flow assumed at an arbitrary speed (usually between 5,000 and 10,000 ft. per min.) and the amount of pressure drop is not exactly known.

Formula—

$A = V \div v$

When

A is the area of the pipe (sq. ft.)
V is max. volume of steam (c. f. m.)
v is the velocity assumed in pipe (ft. per min.)

Note—A $\times$ 144 gives area of pipe in sq. in., and the diameter of the pipe is ascertained from pipe tables.

Note—V is obtained by multiplying the maximum number of lb. by the cu. ft. per lb. at that pressure.

Example—

What size of pipe is required to deliver 100 lb. steam per min., 6,000 ft. per min. velocity at 100.3 lb. gauge?

Solution—

Volume of 100 lb. st., @ 3.88 cu. ft. per lb. = 388 cu. ft.

So A = 388/6000 or 0.064 sq. ft. and

0.064 sq. ft. $\times$ 144 = 9.216 sq. in., or area of 3½ in. pipe.

Published by DOMESTIC ENGINEERING.

These tables combine information found in text books and in practical work. They will be added to each month until the series is completed

Data—*Supplementary to tables . . .*

The general methods used in sizing steam pipes are discussed in this month's series

BEGINNING with this month's issue and continuing for several months, the flow of steam in pipes will be covered in the Heating Reference Data series. The two general methods used for sizing steam pipes, the "Velocity" and "Pressure Drop" methods, are discussed this month. Formulas for the use of each method are presented and a Steam Flow Table is also included. The use of the latter is a more simple process and avoids a number of calculations.

Sheet No. 57

Flow of Steam in Pipes

The flow of steam through pipes is one of the most important matters in engineering, as few plants of any kind can be operated without this feature being brought into play. The two general methods used are known as the "Velocity Method" and the "Pressure Drop Method." In the first case it is customary to assume a given reasonable velocity which may be taken as:

Low Velocity .....5,000 ft. per min.
Medium Velocity .....8,000 ft. per min.
High Velocity .....12,000 to 15,000 ft. per min.

and to use this velocity to determine the size of pipe regardless of the pressure drop. The pressure drop, however, will be quite nominal when low or medium velocities are assumed.

The number of lb. of steam to be passed through the pipe must be changed into volume in cu. ft. per min. by use of the steam table and this volume divided by the velocity assumed will result in the required area of the pipe in sq. ft. Reference to pipe tables such as appear in Sheet No. 31, where areas of the various sizes of pipe in sq. ft. are given, will permit the selection of a pipe having an equal or greater internal area.

Sheet No. 58

Flow of Steam in Pipes

In sizing by the pressure drop method much better results are obtained, as the pressure drop is then known, or ascertained, and the pipe size may be accurately selected to give the pressure drop desired. Some of the mathematical steps by which the pressure drop is calculated are quite complicated as will be seen by the formula, and an effort to simplify this has been developed by using a standard table and then modifying the table to suit other conditions.

Sheet No. 59

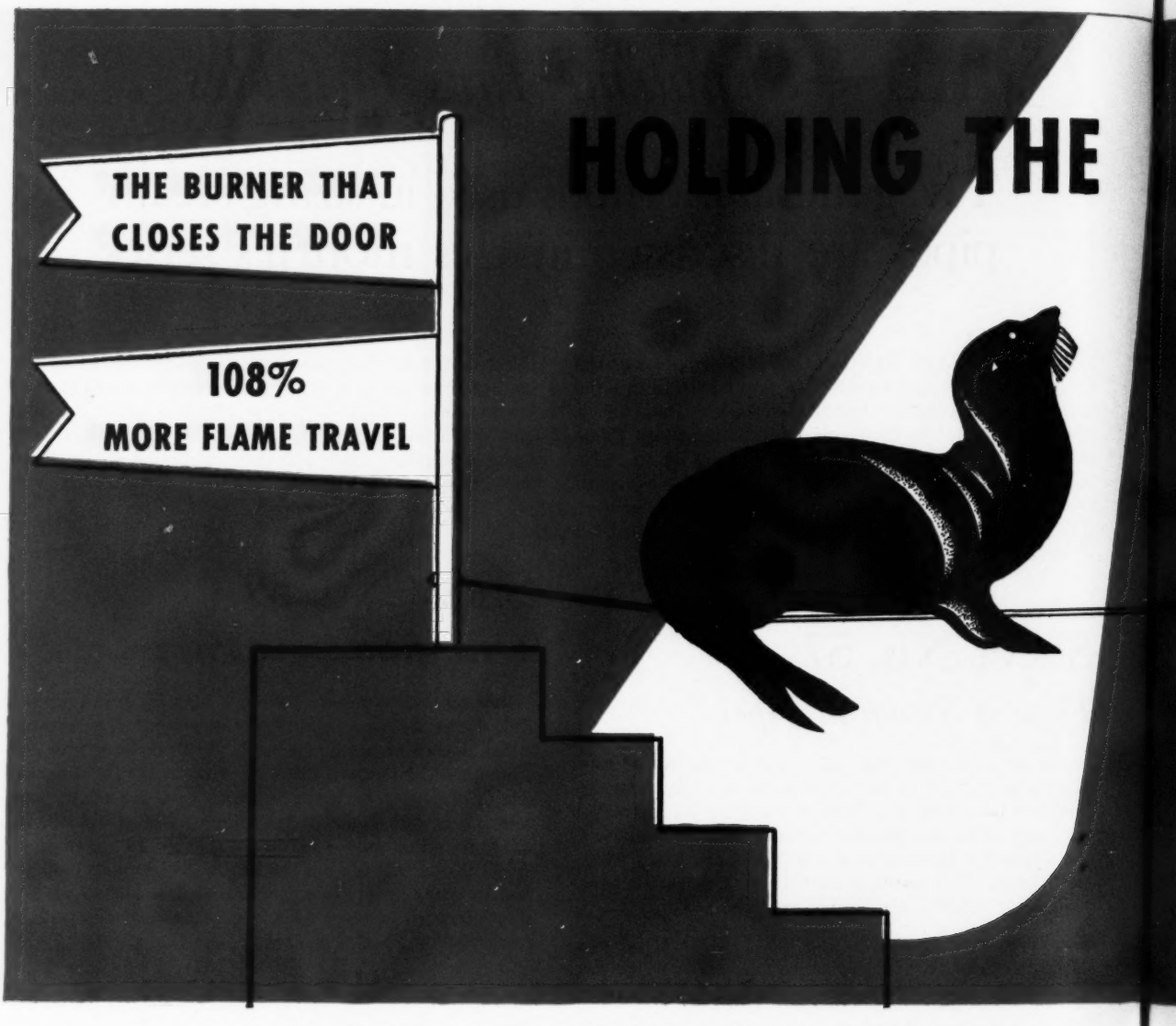
Flow of Steam in Pipes

The table shown in this sheet is for a length of pipe of 240 diameters; the difficulty comes with the formula which is used to modify the table. With the length of 240 diameters this means that the drop is for a different length of pipe on each size of pipe. Thus for a 1 in. pipe a length of 240 diameters amounts to a length of 240 in. or 20 ft., while on a 6 in. pipe the length is increased to 1,440 in. or 120 ft. To the ordinary person, simplicity and time saving are important factors, so curves for the flow of steam in pipes have been developed and will be presented on Sheet No. 61 and following sheets.

Sheet No. 60

Flow of Steam in Pipes

An example of how the tabular amounts can be modified to suit other conditions is shown on this sheet, and the steps necessary for such modification are clearly indicated. When obtained, the result indicates the amount of steam which will be delivered at the drop desired by a pipe of a given size; amounts for other sizes of pipe—should the answer not be suitable—would have to be calculated in a similar manner with the proper size of pipe substituted. It should be noted that the pressure of steam used in all pipe calculations is the average pressure of the entire line and not the initial pressure. In cases where the drop amounts to only a few pounds the initial pressure may be used with small error, but in a case where steam is to be passed through a pipe with a 10 lb. drop the initial pressure should be taken at 5 lb. less—which is another way of saying deduct half the drop from the initial pressure.



Steady Gain in Sales Continues Through Peak of Fall Season

On the crest of the largest advertising campaign in its history, the new Silent Glow Air-Seel swings into the Fall season with a demand consistently exceeding factory expectations. Home-owners by thousands are being convinced that this is in fact the most common-sense choice from the whole oil burner field. They are learning it from enthusiastic Silent Glow owners and from national advertising that is delivering 6,000,000 messages into the homes of America.

Rising Demand Means More Profits for You

This steady demand for Silent Glow oil burners can mean but one thing—the Silent Glow Air-Seel is a profitable burner for you or any other alert dealer to handle. You'll find, as scores of others have, that Air-Seel features are a natural for even inexperienced salesmen to demonstrate—and *sell!*

And you'll find a sincere, effective plan of cooperation with your own sales efforts. The kind of cooperation, for instance, that makes a point of turning over promptly to the nearest dealer all inquiries resulting from Silent Glow's national advertising.

SILENT GLOW
OIL BURNER

SPOTLIGHT FOR PERFORMANCE
USES 20% TO 35% LESS FUEL
IT COSTS LESS TO OWN AN AIR-SEEL
The New Silent Glow Air-Seel
THE GREATEST SHOW IN TOWN
AIR-SEEL
KEEPS THE HEAT INSIDE

Anyone Can Give Convincing PROOF of the Air-Seel Economy Feature

With any oil burner it's easy enough to say "This one costs less to own." But with the Silent Glow Air-Seel, you can *prove* it. Quickly, easily—and convincingly.

Just let your prospect hold a lighted candle to the fan opening of an ordinary burner. He'll see at once how the flame is sucked in *after* the burner shuts off. He can see for himself how cold air is rushing in to chill the 1700 degree interior of the system.

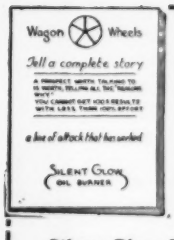
The same simple test will show him how the Silent Glow Progrotor "shuts the door"—instantly stopping this rush of cold air when the burner turns off. He can see with his own eyes how this forms an effective seal. It keeps heat in—cold air out.

It is convincing *proof* of Silent Glow's ability to save from 20% to 35% on fuel costs.

Cash in On This Steady Seller NOW

The number of Silent Glow franchises in each territory is strictly limited. They are being snapped up rapidly. Act now. Get this valuable, money-making franchise for your territory before it is too late.

Remember, the Silent Glow line is complete. There is a size and model for every oil-burning job. A Silent Glow factory representative is never more than a few hours away from you. Expert sales and technical cooperation are available to you 24 hours a day, 365 days a year. Mail the Coupon Today!



Free 9-Page Booklet Tells the Complete Story —Makes Selling Easy

MAIL THIS COUPON NOW

Silent Glow Oil Burner Corp.
(DE-10) Hartford, Connecticut

The Silent Glow franchise sounds like too good a proposition to pass up. Please send me full details and a copy of Wagon Wheels so I can see how easy it is to sell Silent Glow and begin making money from the Silent Glow franchise.

Firm Name .....

Street .....

City ..... State .....

By .....

Steady Gain in Sales Continues Through Peak of Fall Season

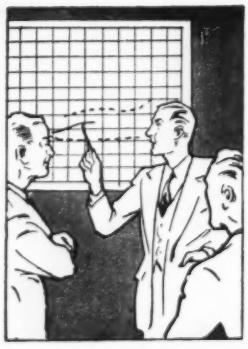
On the crest of the largest advertising campaign in its history, the new Silent Glow Air-Seel swings into the Fall season with a demand consistently exceeding factory expectations. Home-owners by thousands are being convinced that this is in fact the most common-sense choice from the whole oil burner field. They are learning it from enthusiastic Silent Glow owners and from national advertising that is delivering 6,000,000 messages into the homes of America.

Rising Demand Means More Profits for You

This steady demand for Silent Glow oil burners can mean but one thing—the Silent Glow Air-Seel is a profitable burner for you or any other alert dealer to handle. You'll find, as scores of others have, that Air-Seel features are a natural for even inexperienced salesmen to demonstrate—and *sell!*

And you'll find a sincere, effective plan of cooperation with your own sales efforts. The kind of cooperation, for instance, that makes a point of turning over promptly to the nearest dealer all inquiries resulting from Silent Glow's national advertising.

SILENT GLOW OIL BURNER



Business

Trade Prices Advance . . . Expect Improved Shipments . . .

Upward Trend Resumed

• *Advance of 4.62 points over the figure shown in July—Portion of increase in dollar volume is result of higher prices*

For the first time in five months, the curve of plumbing and heating sales has pointed upward. The gain for August over last year was 11.92 per cent and represents an advance of 4.62 points over the figure shown in July. Taking into consideration the fact that business in August, 1936, was exceptionally good, this is an excellent gain. A portion of this increase in dollar volume is, of course, a direct result of higher prices. Trade prices of radiation, boilers, brass goods and enameled iron ware, were reported to have advanced approximately 5 per cent in most sections.

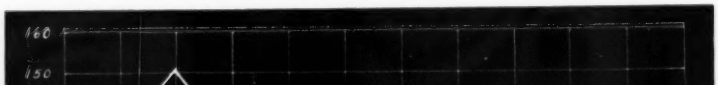
July shipments of range boilers, plumbing brass and oil burners dropped considerably, while steel boilers, water systems, water softeners and mechanical stokers showed increases over last about the same as it has been, and one did not comment.

Middle Atlantic States: Forty-three Middle Atlantic wholesalers report an average gain of 6.68 per cent for the month of August over the same month of last year, and a gain of 19.93 per cent for the first 8 months of this year over the same period of 1936. Sixteen of these firms expect business next month to be better than last year, 17 expect it to be about the same, 4 expect a decline and the other 6 did not comment.

South Atlantic States: Eleven wholesalers in the South Atlantic section report an average gain of 15.93 per cent for the month of August over the same month of last year and a gain of 30.28 per cent for the first 8 months compared with the same period of last year. Five anticipate an increase in September over September of last year, 4 expect business to continue about the same and 2 expect a decline. One of these firms expecting a decline stated that September was one of the largest sales months they had in 1936.

A firm in Maryland reports price cutting in their territory. A North Carolina wholesaler emphasized continued building activity. A firm in Virginia states that business was very active last fall and while they expect it to be good this year they do not look for an increase over last September.

East North Central States: Twenty-nine wholesalers in the East North



Anyone Can Give Convincing PROOF of the Air-Seel Economy Feature

With any oil burner it's easy enough to say "This one costs less to own." But with the Silent Glow Air-Seel, you can *prove* it. Quickly, easily—and convincingly.

Just let your prospect hold a lighted candle to the fan opening of an ordinary burner. He'll see at once how the flame is sucked in *after* the burner shuts off. He can see for himself how cold air is rushing in to chill the 1700 degree interior of the system.

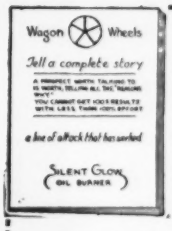
The same simple test will show him how the Silent Glow Progrotor "shuts the door"—instantly stopping this rush of cold air when the burner turns off. He can see with his own eyes how this forms an effective seal. It keeps heat in—cold air out.

It is convincing *proof* of Silent Glow's ability to save from 20% to 35% on fuel costs.

Cash in On This Steady Seller NOW

The number of Silent Glow franchises in each territory is strictly limited. They are being snapped up rapidly. Act now. Get this valuable, money-making franchise for your territory before it is too late.

Remember, the Silent Glow line is complete. There is a size and model for every oil-burning job. A Silent Glow factory representative is never more than a few hours away from you. Expert sales and technical cooperation are available to you 24 hours a day, 365 days a year. Mail the Coupon Today!



Free 9-Page Booklet Tells the Complete Story —Makes Selling Easy

MAIL THIS COUPON NOW

Silent Glow Oil Burner Corp.
(DE-10) Hartford, Connecticut

The Silent Glow franchise sounds like too good a proposition to pass up. Please send me full details and a copy of Wagon Wheels so I can see how easy it is to sell Silent Glow and begin making money from the Silent Glow franchise.

Firm Name .....

Street .....

City ..... State .....

By .....

JULY BUILDING PERMITS—53 Most Active Cities

State and City	New Residential Buildings	Families Provided For	New Non-Residential Buildings	Total (Including Repairs)
NEW ENGLAND STATES				
Bridgeport, Conn.	$ 51,000	11	$ 401,000	$ 534,160
Hartford, Conn.	74,400	11	419,700	724,500
Boston, Mass.	656,000	205	131,265	1,644,975
MIDDLE ATLANTIC STATES				
Newark, N. J.	25,000	4	685,225	1,058,611
New York City:				
The Bronx	337,000	53	195,910	1,309,067
Brooklyn	3,870,081	521	1,558,945	6,665,833
Manhattan	0	0	1,724,800	3,323,553
Queens	1,934,750	511	1,295,929	4,947,022
Erie, Pa.	27,400	7	366,475	456,267
Philadelphia, Pa.	880,610	193	870,590	2,494,627
Pittsburgh, Pa.	150,500	38	42,573	515,101
EAST NORTH CENTRAL				
Chicago, Ill.	271,850	34	2,425,679	3,363,198
Evansville, Ind.	29,200	10	291,135	430,146
Indianapolis, Ind.	234,900	48	500,685	831,562
Detroit, Mich.	1,870,076	342	764,232	3,245,419
Cincinnati, O.	1,254,455	256	841,750	2,381,955
Cleveland, O.	172,500	32	178,279	664,529
Columbus, O.	307,100	64	33,150	498,450
Dayton, O.	103,440	18	502,420	695,934
Toledo, O.	164,700	35	1,073,383	1,318,213
Milwaukee, Wis.	302,170	58	110,744	1,064,660
WEST NORTH CENTRAL				
Minneapolis, Minn.	173,900	43	215,770	752,130
St. Paul, Minn.	166,140	30	181,128	458,022
St. Louis, Mo.	361,100	99	381,245	985,202
Omaha, Neb.	149,945	50	936,960	1,120,987
SOUTH ATLANTIC				
Wilmington, Dela.	36,400	8	227,135	436,840
Washington, D. C.	1,319,750	322	996,460	3,435,944
Miami, Fla.	684,827	184	223,869	1,110,051
Miami Beach, Fla.	1,166,650	179	93,200	1,401,895
Atlanta, Ga.	173,400	68	185,426	603,194
Baltimore, Md.	425,000	89	534,500	1,460,579
Richmond, Va.	79,700	19	495,115	666,345
EAST SOUTH CENTRAL STATES				
Louisville, Ky.	209,400	72	354,318	693,732
WEST SOUTH CENTRAL STATES				
New Orleans, La.	169,764	40	91,290	585,671
Oklahoma City, Okla.	221,675	86	207,643	481,968
Austin, Texas	191,755	81	208,065	443,188
Corpus Christi	97,585	85	358,905	469,590
Dallas, Texas	230,410	90	143,891	607,017
Houston, Texas	766,745	190	125,528	984,473
San Antonio, Texas	126,825	53	69,770	542,736
MOUNTAIN STATES				
Denver, Colo.	345,700	84	91,060	611,023
PACIFIC STATES				
Beverly Hills, Calif.	316,750	42	143,000	525,080
Culver City, Calif.	26,845	9	661,000	692,145
Glendale, Calif.	349,550	73	414,892	774,526
Long Beach, Calif.	212,030	74	86,370	464,745
Los Angeles, Calif.	2,766,630	713	1,018,038	4,585,558
Oakland, Calif.	446,930	106	129,969	719,617
Pasadena, Calif.	96,100	16	235,558	438,176
Sacramento, Calif.	157,762	43	142,809	569,723
San Diego, Calif.	521,124	146	46,113	628,152
San Francisco, Calif.	641,650	156	2,434,964	3,548,542
Portland, Ore.	252,405	61	198,445	581,570
Spokane, Wash.	141,885	46	17,760	238,379

ported a gain of 20.45 per cent over the same period of last year. Two expect business to be better in September than it was in the same month last year and one expects it to be about the same.

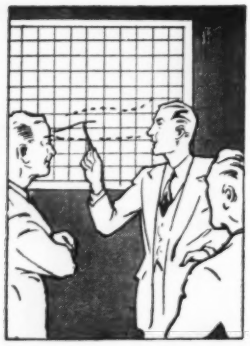
Mountain States: Four wholesalers in the Mountain States reported an average gain of 22.08 per cent for August and a gain of 39.50 per cent for the first 8 months of 1937 over the like period of 1936. Two of these firms expect business next month to show an improvement over last year, and the other 2 expect business to continue about the same.

A wholesaler in Colorado reports that new taxes, both government and state, have slowed building to a large extent in its territory.

Pacific States: Seven Pacific wholesalers report an average gain of 11.80 per cent for the month of August over the same month of '36 and a gain of 21.65 per cent for the first 8 months of this year over the same period of last year. Five expect business in September to show an improvement over last year, one expects a decline, while the seventh did not comment.

Air Conditioning

Forty-one utilities reported 381 installations in August and 309 in August last year—a gain of 23.30 per cent. The horsepower was 4,573.28 in August 1937, as against 4,716.61 in August, 1936—a decline of 3.39 per cent. For the first eight months of 1937, these same 41 utilities reported 3,315 installations, while for the same period of 1936 there were 2,269 installations—a gain of 46.10 per cent. Horsepower totaled 73,748.33 for the first eight months of 1937 and



Business

Trade Prices Advance . . . **Expect Improved Shipments . . .**

Upward Trend Resumed

- *Advance of 4.62 points over the figure shown in July—Portion of increase in dollar volume is result of higher prices*

For the first time in five months, the curve of plumbing and heating sales has pointed upward. The gain for August over last year was 11.92 per cent and represents an advance of 4.62 points over the figure shown in July. Taking into consideration the fact that business in August, 1936, was exceptionally good, this is an excellent gain. A portion of this increase in dollar volume is, of course, a direct result of higher prices. Trade prices of radiation, boilers, brass goods and enameled iron ware, were reported to have advanced approximately 5 per cent in most sections.

July shipments of range boilers, plumbing brass and oil burners dropped considerably, while steel boilers, water systems, water softeners and mechanical stokers showed increases over last year. Cast iron boilers and radiation both showed declines from July, 1936. Wholesaler reports, however, indicate that factory shipments will show improvement in August or September.

Key Wholesalers

August reports from 123 wholesalers show an average gain of 11.92 per cent over August, 1936. For the first 8 months of 1937 they averaged 23.59 per cent ahead of the same period of last year. Fifty-seven of these firms expect September to show improvement over last year, 46 expect it to remain about the same, 10 expect a decline and 10 did not comment.

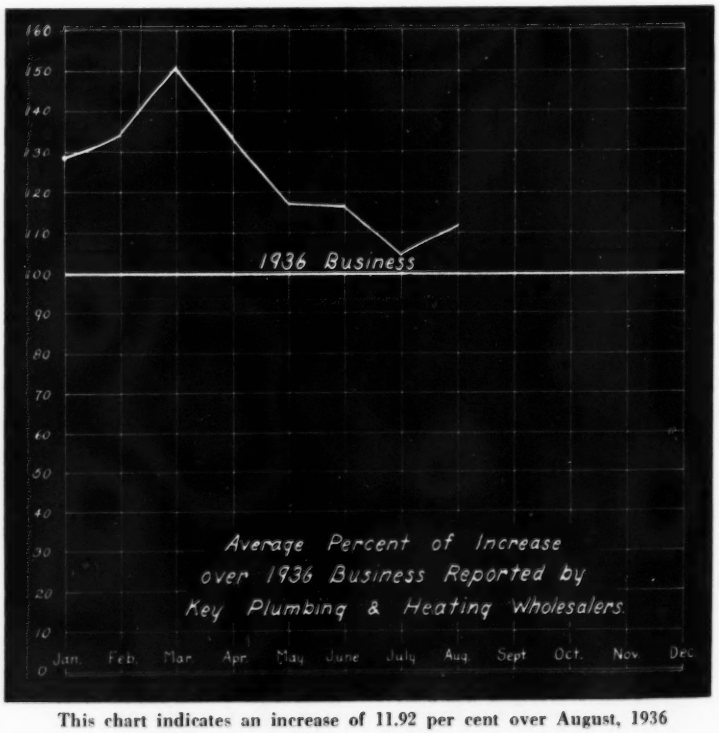
New England States: Nine wholesalers in this section report an average gain of 19.37 per cent for August as compared with August, 1936. These firms also reported an increase of 21.43 per cent for the first 8 months of this year over the same period of last. Four of these wholesalers expect business to be better in September than in September of last year, 4 expect it to continue about the same as it has been, and one did not comment.

Middle Atlantic States: Forty-three Middle Atlantic wholesalers report an average gain of 6.68 per cent for the month of August over the same month of last year, and a gain of 19.93 per cent for the first 8 months of this year over the same period of 1936. Sixteen of these firms expect business next month to be better than last year, 17 expect it to be about the same, 4 expect a decline and the other 6 did not comment.

South Atlantic States: Eleven wholesalers in the South Atlantic section report an average gain of 15.93 per cent for the month of August over the same month of last year and a gain of 30.28 per cent for the first 8 months compared with the same period of last year. Five anticipate an increase in September over September of last year, 4 expect business to continue about the same and 2 expect a decline. One of these firms expecting a decline stated that September was one of the largest sales months they had in 1936.

A firm in Maryland reports price cutting in their territory. A North Carolina wholesaler emphasized continued building activity. A firm in Virginia states that business was very active last fall and while they expect it to be good this year they do not look for an increase over last September.

East North Central States: Twenty-nine wholesalers in the East North



This chart indicates an increase of 11.92 per cent over August, 1936

JULY BUILDING PERMITS—53 Most Active Cities

State and City	New Residential Buildings	Families Provided For	New Non-Residential Buildings	Total (Including Repairs)
NEW ENGLAND STATES				
Bridgeport, Conn.	$ 51,000	11	$ 401,000	$ 534,160
Hartford, Conn.	74,400	11	419,700	724,500
Boston, Mass.	656,000	205	131,265	1,644,975
MIDDLE ATLANTIC STATES				
Newark, N. J.	25,000	4	685,225	1,058,611
New York City:				
The Bronx	337,000	53	195,910	1,309,067
Brooklyn	3,870,081	521	1,558,945	6,665,833
Manhattan	0	0	1,724,800	3,323,553
Queens	1,934,750	511	1,295,929	4,947,022
Erie, Pa.	27,400	7	366,475	456,267
Philadelphia, Pa.	880,610	193	870,590	2,494,627
Pittsburgh, Pa.	150,500	38	42,573	515,101
EAST NORTH CENTRAL				
Chicago, Ill.	271,850	34	2,425,679	3,363,198
Evansville, Ind.	29,200	10	291,135	430,146
Indianapolis, Ind.	234,900	48	500,685	831,562
Detroit, Mich.	1,870,076	342	764,232	3,245,419
Cincinnati, O.	1,254,455	256	841,750	2,381,955
Cleveland, O.	172,500	32	178,279	664,529
Columbus, O.	307,100	64	33,150	498,450
Dayton, O.	103,440	18	502,420	695,934
Toledo, O.	164,700	35	1,073,383	1,318,213
Milwaukee, Wis.	302,170	58	110,744	1,064,660
WEST NORTH CENTRAL				
Minneapolis, Minn.	173,900	43	215,770	752,130
St. Paul, Minn.	166,140	30	181,128	458,022
St. Louis, Mo.	361,100	99	381,245	985,202
Omaha, Neb.	149,945	50	936,960	1,120,987
SOUTH ATLANTIC				
Wilmington, Dela.	36,400	8	227,135	436,840
Washington, D. C.	1,319,750	322	996,460	3,435,944
Miami, Fla.	684,827	184	223,869	1,110,051
Miami Beach, Fla.	1,166,650	179	93,200	1,401,895
Atlanta, Ga.	173,400	68	185,426	603,194
Baltimore, Md.	425,000	89	534,500	1,460,579
Richmond, Va.	79,700	19	495,115	666,345
EAST SOUTH CENTRAL STATES				
Louisville, Ky.	209,400	72	354,318	693,732
WEST SOUTH CENTRAL STATES				
New Orleans, La.	169,764	40	91,290	585,671
Oklahoma City, Okla.	221,675	86	207,643	481,968
Austin, Texas	191,755	81	208,065	443,188
Corpus Christi	97,585	85	358,905	469,590
Dallas, Texas	230,410	90	143,891	607,017
Houston, Texas	766,745	190	125,528	984,473
San Antonio, Texas	126,825	53	69,770	542,736
MOUNTAIN STATES				
Denver, Colo.	345,700	84	91,060	611,023
PACIFIC STATES				
Beverly Hills, Calif.	316,750	42	143,000	525,080
Culver City, Calif.	26,845	9	661,000	692,145
Glendale, Calif.	347,550	73	414,892	774,526
Long Beach, Calif.	212,030	74	86,370	464,745
Los Angeles, Calif.	2,766,630	713	1,018,038	4,585,558
Oakland, Calif.	446,930	106	129,969	719,617
Pasadena, Calif.	96,100	16	235,558	438,176
Sacramento, Calif.	157,762	43	142,809	569,723
San Diego, Calif.	521,124	146	46,113	628,152
San Francisco, Calif.	641,650	156	2,434,964	3,548,542
Portland, Ore.	252,405	61	198,445	581,570
Spokane, Wash.	141,885	46	17,760	238,379

Central States report an average gain of 22.09 per cent for the month of August over August of last year. They also reported a gain of 28.89 per cent for the first 8 months of '37 over this same period in 1936. Nineteen anticipate an increase in September business over September of last year, 7 expect it to continue about the same and 3 expect a decline.

Wholesalers in both Illinois and Indiana report unusually good prospects for fall crops. A Michigan firm reports that the construction of new homes should give them an increase in September business. An Ohio wholesaler expects an increase next month because of better general business.

East South Central States: Four wholesalers in this section report an average gain of 10.99 per cent for August over the same month of last year, and an increase of 21.27 per cent for the first 8 months of 1937 over the like period of 1936. Three of these firms expect business in September to be the same as last year while the other one did not comment.

A Tennessee wholesaler remarked that the last half of last year was exceptionally good for them. He continued by saying that they would be pleased to equal it.

West North Central States: Thirteen West North Central wholesalers report an average gain of 2.38 per cent in August of 1937 as compared with August, 1936. The gain for the first 8 months was 16.70 per cent. Four firms expect September to be better, 8 expect it to be about the same and one did not comment.

An Iowa firm reports a large volume of heating orders coming in. A Kansas firm states that farmers are holding wheat for better prices. Another Kansas wholesaler remarked that building is picking up and builders are finishing work planned and started a few months ago.

West South Central States: Three wholesalers in the West South Central States reported an average decline of 9.22 per cent for August, 1937, as compared with the same month of 1936. For the first 8 months these same firms reported a gain of 20.45 per cent over the same period of last year. Two expect business to be better in September than it was in the same month last year and one expects it to be about the same.

Mountain States: Four wholesalers in the Mountain States reported an average gain of 22.08 per cent for August and a gain of 39.50 per cent for the first 8 months of 1937 over the like period of 1936. Two of these firms expect business next month to show an improvement over last year, and the other 2 expect business to continue about the same.

A wholesaler in Colorado reports that new taxes, both government and state, have slowed building to a large extent in its territory.

Pacific States: Seven Pacific wholesalers report an average gain of 11.80 per cent for the month of August over the same month of '36 and a gain of 21.65 per cent for the first 8 months of this year over the same period of last year. Five expect business in September to show an improvement over last year, one expects a decline, while the seventh did not comment.

Air Conditioning

Forty-one utilities reported 381 installations in August and 309 in August last year—a gain of 23.30 per cent. The horsepower was 4,573.28 in August 1937, as against 4,716.61 in August, 1936—a decline of 3.39 per cent. For the first eight months of 1937, these same 41 utilities reported 3,315 installations, while for the same period of 1936 there were 2,269 installations—a gain of 46.10 per cent. Horsepower totaled 73,748.33 for the first eight months of 1937 and 44,335.23 for the same period of 1936—an increase of 66.34 per cent.

Oil Burners

There were 16,404 oil burners shipped in July, which is a decrease of 6.01 per cent from the same month of last year. Shipments for the first seven months, however, were 19.12 per cent ahead of last year's like period.

Forty-two cities reported 2,152 oil burner permits issued in August, 1937, as against 2,345 in August, 1936—a decrease of 8.23 per cent. During the first 8 months of this year there were 12,708 oil burner permits issued, while during the same period of last year there were 12,180 permits issued in these 42 cities. This is a gain of 4.33 per cent.

Stokers

Shipments of domestic and commercial stokers in July totaled 7,249—as against 5,952 in July, 1936—a gain of 21.79 per cent. Again, the small domestic stokers predominated. Stoker shipments are 56.0 per cent ahead of the first seven months of 1937.

SHIPMENTS OF PLUMBING AND HEATING ITEMS

	July, 1937	July, 1936	Total First 7 Months 1937	Per cent of change First 7 Mos. 1937 compared with First 7 Mos. 1936.
Steel boilers Number of units	1,181	1,091	6,272	+14.45
Range boilers Number of units	35,555	78,442	526,598	+10.24
Domestic water systems Number of units	17,425	16,815	120,685	+33.00
Domestic water softening apparatus Number of units	1,070	845	7,516	+17.20
Plumbing brass Thousands of pieces	1,554	1,704	13,553	+29.42
Oil burners Number of units	16,404	17,450	93,746	+19.12
Mechanical stokers (for residential, apartment and small commercial use)	7,249	5,952	39,525	+56.00
Cast iron boilers Thousands of pounds	19,796	33,105	112,803	—17.39
Cast iron radiation Thousands of feet of heating surface	5,543	8.027	32,471	+3.65

KEY WHOLESALERS

	Pct. of change in August as compared with same month of last year	Pct. of change for first eight months of this year as compared with the same period of last year	Better	Same	Worse	No Comment	Total Reports
New England	+19.37	+21.43	4	4	0	1	9
Middle Atlantic	+ 6.68	+19.93	16	17	4	6	43
South Atlantic	+15.93	+30.28	5	4	2	0	11
East North Central	+22.09	+28.89	19	7	3	0	29
East South Central	+10.99	+21.27	0	3	0	1	4
West North Central	+ 2.38	+16.70	4	8	0	1	13
West South Central	— 9.22	+20.45	2	1	0	0	3
Mountain	+22.08	+39.50	2	2	0	0	4
Pacific	+11.80	+21.65	5	0	1	1	7
TOTAL			57	46	10	10	123

Stoker permits for 17 cities totaled 191 in August this year. This is a gain of 15.06 per cent over the 166 reported for August last year. There were 1,513 permits issued in the first eight months of 1937 and 1,250 during the like period of 1936—a gain of 21.04 per cent. These figures are not complete for these cities but help to indicate the trend.

Gas Heating

According to the American Gas Association, there were 160,200 gas heating customers on the lines of manufactured gas utilities at the end of June. At the end of June, 1936, there were 130,300; hence a cumulative gain of 22.9 per cent. Similar figures for natural gas territories are not available.

Building Construction

According to the Department of Labor a substantial decrease in the value of permits issued for residential construction was the outstanding feature of the July building permit reports. Permits for residential construction in the 1,483 cities from which the Bureau of Labor Statistics received reports totaled less than $54,000,000, a decline of 24.4 per cent from the June total for the same cities. A small increase of 2.4 per cent was shown for nonresidential buildings and a decline of 6.6 per cent for additions, alterations and repairs. The total for all classes of construction was slightly less than $132,000,000, a decline of 12.4 per cent from the preceding month.

A comparison with July, 1936, shows that the July, 1937, total is 15.2 per cent below that for a year ago. The decline is accounted for entirely by residential construction, which was 38.4 per cent lower than last year.

Metal Prices

(Prices as of September 17, 1937)

New Metal Market—Domestic, weak; foreign, $13.25.

Electrolytic Copper—Delivered Middle West, 14⅛.

Lead—St. Louis, $6.35 cwt.; New York, $6.50 cwt.

Ingot 5 lb., St. Louis, $6.85.

Zinc—St. Louis, $7.25 cwt.

Tin—New York, $59.87½ cwt.

Brass Ingot—8 5/5/5/5—14 c/1; $14.25 LCL delivered.

Yellow Ingot—$11.50 LCL delivered.

Scrap Metal (Dealers' Buying Prices)—weak.

Composition and Steam Brass—$8.50 cwt.

Strictly Heavy Yellow Brass Scrap, Cast—$6.50 cwt.

Mixed, strictly cocks and faucets (including ball cocks, etc.)—$7.00 cwt.

Light brass, tubes, pipes, old sheets, etc.—$6.00 cwt.

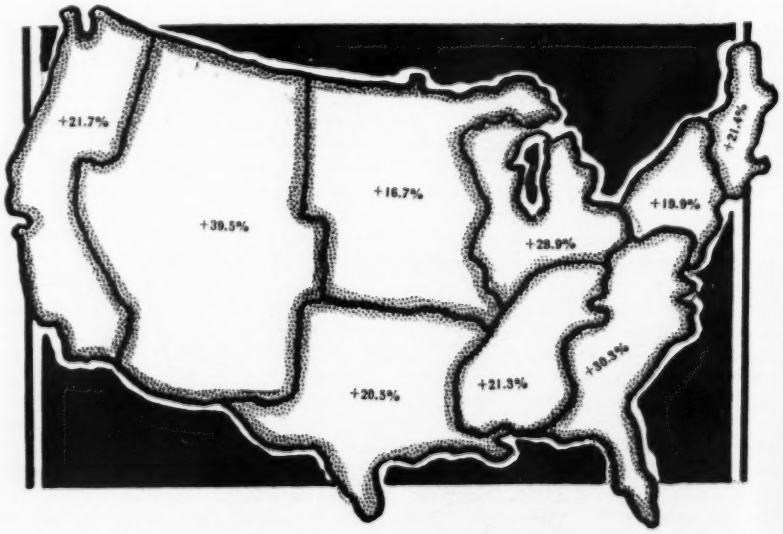
Old scrap lead pipe etc.—$5.00 cwt.

Copper sheeting and roofing, free of nails—$8.50 cwt.

Copper boilers, tanks and other light materials—$8.50 cwt.

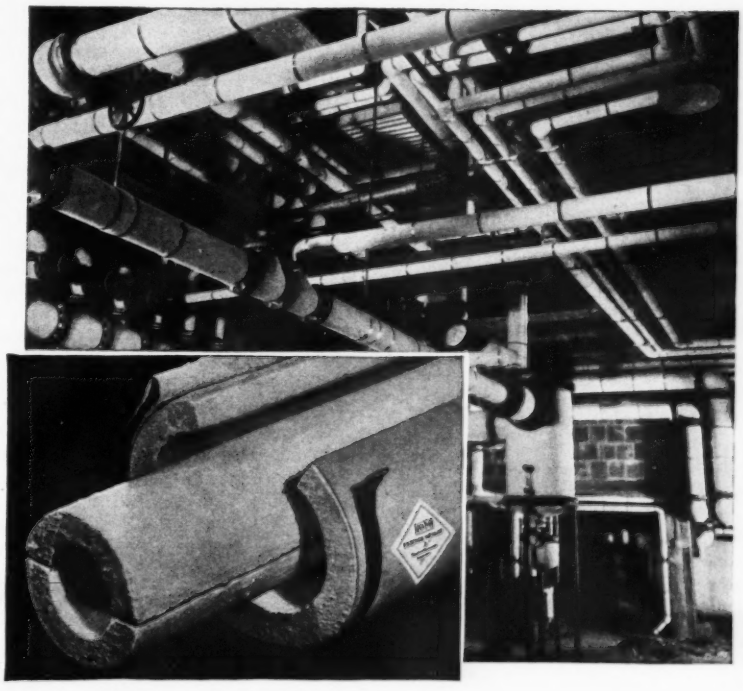
Soldered joints—nominal, f.o.b. Chicago.

Block tin—$48.00 cwt., f.o.b. Chicago.



This map shows the average percentage of change in the business of key wholesalers in each section of the country for the first eight months of 1937 compared with the first eight months of 1936

High efficiency plus durability



K&M

"FEATHERWEIGHT" 85% MAGNESIA

When high insulating efficiency is called for, 85% Magnesia is sure to give full satisfaction. Not only for just a few years, but permanently. For 85% Magnesia never loses its efficiency. It is unharmed by floods, water leakage, or steam. If necessary, it can be removed and re-applied. It is today saving countless thousands of dollars that might otherwise be lost through wasted heat.

K & M "Featherweight" 85% Magnesia has behind it more than 60 years' experience in the development of asbestos and magnesia products. All K & M materials are made under conditions of the most rigid quality-control. The K & M line is complete, priced right, and sold by the right people . . . sold only through established channels of distribution.

Send for information

Asbestos Air Cell Insulation in sections and blocks • Wool Felt Pipe Insulations • "Featherweight" 85% Magnesia Pipe Insulations and Blocks • Asbestos Insulating Cements • Asbestos Paper and Mill Board • Asbestos Packings and Gaskets • Range Boiler Jackets • Asbestos Lead Joint Runners.

Underline the products on which you want full information and mail this coupon today.

Name_____

Name of Firm _____

Address _____ 6-14

KEASBEY & MATTISON COMPANY
AMBLER, PENNA.

Construction Gain

The August record of total construction in the 37 eastern states amounted to $285,104,100, as reported by F. W. Dodge Corp. This contract volume compares with $275,281,400 for August of last year and with $321,602,700 for July of this year. Of the August 1937 volume, $73,448,300 represented residential building, $117,209,800 non - residential building and $84,446,000 public works and utilities.

Approximately two-thirds of the July to August decline in contracts was due to a decrease in the amount of publicly financed work, the report stated. In addition, there occurred also a drop of more than $30,000,000 in the total for unusually large projects (jobs costing one million dollars and over) which happened to start during July rather than during August. In spite of these two adverse influences, the August total represented a gain of 4 per cent over last year and a decline of less than 11 per cent from July of this year.

Gas Appliances

For the first six months of 1937 shipments of all domestic gas consuming appliances showed pronounced gains over the corresponding period of last year, according to a bulletin of the Assn. of Gas Appliance and Equipment Manufacturers.

Automatic gas water heater shipments increased 48.8 per cent; gas space heaters 68.2 per cent; boilers 38.9 per cent; conversion burners 83.2 per cent over the corresponding period of 1936.

Gains were also reported in the hotel, restaurant and commercial gas equipment industry.

Building Permits

New dwelling units numbering 118,597 were provided in the entire urban area of the United States during the first half of 1937, according to an estimate made by the Bureau of Labor Statistics. This is an increase of more than 33,000 units or 39 per cent as compared with the corresponding period of 1936. The estimate is based on reports from more than 1,500 cities having a population of 59,000,000, or 85 per cent of the entire country's urban population.

Cities of all sizes registered gains. The rate of increase, however, was somewhat greater in cities having a population of less than 25,000 than in the larger communities. All geographic divisions shared in the advance, although the most pronounced gain was registered in the Pacific Coast states.

The fourteen cities having a population of half a million or over provided for more families than any other population group. The majority of new family building accommodations in these cities were in apartment houses. In all other cities more dwelling units were provided in the single residence type of structure than in apartment houses. Even in the fourteen largest cities there was considerable variation in the type of dwellings built. In New York City by far the larger number of dwelling units provided were in apartment houses. Washington also provided a sizeable proportion of this type of structure. In Baltimore and Philadelphia, on the other hand, where the one family dwelling is the most popular type of abode, permits were issued for very few new apartment buildings.

In the New England states more than 86 per cent of all dwelling units provided were in one family dwellings. In contrast, in the Middle Atlantic states nearly 56 per cent of the units were in apartment houses.

Security Act

- *Old age benefits program defined and clarified by copies of regulations made available through Social Security Board*

Provision for the guidance of all participants in the old-age benefits program has been assured by an announcement of the Social Security Board that it is making available throughout the country, copies of regulations governing these benefits, particularly those relating to the filing of claims. Establishments of a special field service to facilitate the handling of claims also was announced.

In the regulations, the Board explained that its action was in line with its policy of bringing closely together its administrative forces and the millions of individuals affected. Although it is convinced that a great majority of the public already understands the details of its old-age insurance plan, reports from the field have made it apparent that thousands of men and women working in industry and commerce are not yet familiar with all of its intricacies. These will now have an opportunity to acquire from the regulations more detailed and specific information without seeking legal advice.

Initial Shipment

An initial shipment of the regulations was made late in July. They will be made available immediately at regional and field offices. This campaign of advice to claimants will be continued so that there will remain no district in which a worker will encounter difficulty or delay in obtaining access to information he may require.

Included in the regulations are clearly stated definitions of the terms used in the old-age benefits provisions of the Act, such as "employment," "casual labor," and "wages." "Excepted services" are listed and described. Confusion as to what persons are covered by the Act and those who are not is reduced, and the rights and obligations of the employe are clearly explained.

The regulations have been so drawn as to make the understanding of the claims provisions relatively simple. They explain just who are entitled to receive the lump-sum benefits now payable on death or at the age of 65.

Procedure Followed

The procedure that should be followed by a claimant, whether he be a worker who retires upon reaching the age of 65, or an individual interested in the estate of a deceased worker, is carefully outlined.

The further explanation of claims procedure in specific cases will be undertaken by claims specialists who are being selected by the Bureau of Federal Old-Age Benefits for assignment to posts in its field service. Claims representatives already have been designated and assigned to regional offices. The naming of others will be continued until the service is operating in all twelve regions and in the more important industrial centers of the country.

These representatives will be instructed to establish contacts with both employe and employer to familiarize them with the procedure that should be followed in the handling of claims. Special emphasis has been placed upon the desirability of acquainting employers with this procedure with the hope that their full cooperation may be obtained as their employes retire upon reaching the age of 65 or as they die and their heirs become eligible for the receipt of lump-sum payments.

As a part of the educational program which it is expected they will carry on, the claims representatives have been told to seek the cooperation not only of personnel officers and other individuals directly concerned in the employment of workers, but of the high officials, and to explain to them claims procedure whenever the opportunity is given and to such organizations as chambers of commerce, Rotary Clubs, Kiwanis Clubs and similar groups of business men.

In addition to carrying on this educational campaign, they will have the immediate task of assisting in the correct preparation of claims applications, in the procurement of adequate supporting evidence, and the ascertainment, insofar as possible, of all pertinent facts incident to the filing of a claim. These representa-

tives will also be held responsible for the checking of all evidence presented in connection with claims filed to insure its acceptability, and for compliance with regulations and instructions governing the administration of benefits.

Construction Data

The importance of building as a factor not only in the advancement of living standards, but in maintaining the national economic balance is reflected in a compendium of "Facts—About Construction and Housing" issued by the Chamber of Commerce of the United States.

Among the facts listed, from official and authoritative sources, are: that from a peak of $11,060,000,000 in 1928 the volume of construction decreased to a low of $3,002,000,000 in 1933. It increased to $6,784,000,000 in 1936; that private residential construction accounted for 39.2 per cent of the total construction outlay in 1928 and only 18.4 per cent in 1936; that "overcrowding" of dwellings is much less in the United States than in many foreign countries, the percentage of such overcrowded dwellings ranging from 3 per cent in England to 1.4 per cent in 64 American cities; that during the present decade the average annual increase in the number of families will approximate 475,000 to 500,000; that the average annual number of family dwelling units upon which construction was started was 677,000 in the decade 1920-1929 and only 165,000 in the seven years 1930-1936; that the total number of dwelling units built or under construction by the Federal government to date is only 27,161; that the greatest lag has been in the construction of low cost housing; that the number of firms engaged in contract construction decreased from 135,057 in 1929 to 75,047 in 1935; that regular construction employment reached a peak of 2,888,000 in 1928 and declined to 629,000 in 1934, recovering to 1,210,000 at the 1936 peak; that savings and loan associations hold 23.1 per cent and private individuals 21.4 per cent of the $17,740,000,000 of home mortgages outstanding.

Oil Consumption

Domestic fuel oil sales this year will reach an all time high of 75,000,000 barrels of 42 gal. each, according to a prediction by E. L. Sylvester, sales manager of Nash-Kelvinator Corp. automatic heating department. This figure compares with 60,178,000 barrels for 1936.

At the end of last Winter's selling season there were 1,181,604 oil burners in use in this country of which 218,000 were sold in 1936. Mr. Sylvester believes that the total for 1937 sales will nearly double this figure.

The reasons assigned for this increase are better business conditions and thus increased buying power among consumers, new, more economical and efficient equipment and a nationwide interest in automatic heating.

August Construction

Reports received by the Bureau of Labor Statistics from 1,456 cities with a population of 2,500 or more indicated an advance of all types of building construction activity in August. The value of new non-residential construction for which permits were issued during the month was 12 per cent above the July level. Smaller increases are indicated in permits issued for new residential construction and for additions, alterations and repairs to existing structures. The total value of all classes of construction for which permits were issued in August was 6 per cent higher than in the month preceding.

Compared with the same month of last year, the total value of building permits issued in August showed a decrease of 4 per cent. This decline was due to a reduction of 23 per cent in the value of new residential construction, as an increase of 25 per cent is indicated in expenditures for new non-residential construction, and a gain of 3 per cent in the value of permits issued for additions, alterations and repairs.

Social Security

• *Present status of Act defined—Progress indicated*

The Social Security Act became law two years ago, on August 14, 1935. When the Social Security Act became law two years ago, Wisconsin had an unemployment compensation law. Other States had laws designed to extend public assistance to one or another class of dependents. But there was no nation-wide, coordinated program.

Today unemployment compensation programs, covering 21,000,000 workers and 2,000,000 employers, are in operation in the 48 States and in the District of Columbia, Alaska, and Hawaii. Today 47 States and the District of Columbia, Hawaii and Alaska have approved programs for old-age assistance, through which aid is extended to 1,433,250 aged men and women who are in need. Thirty-six States and the District of Columbia provide aid for 475,850 dependent children under laws which have been approved by the Social Security Board as a part of the national program. Thirty-five States and the District of Columbia have approved programs for aid to the blind under which help is being given to 41,270 needy blind persons.

More than 30,000,000 applications for Social Security account numbers have been filed with the Social Security Board by workers. Employers are making reports regularly of the individual wage record of their employes, and these reports will determine the amount of the benefits to be paid to the individual worker or his estate.

Other Considerations

In addition to these old age assistances, aid to dependent children, and aid to needy blind—State-Federal programs administered under the Social Security Board—consideration also must be given to those other sections of the act which are administered by the Children's Bureau of the United States Department of Labor, the United States Public Health Service, and the United States Office of Education.

Good News

News Note: Viking Pump Co., Cedar Falls, Iowa, has awarded the contract for a one-story, 32 by 96 ft. addition to the present plant.

* * *

News Note: Indianapolis Engineering Corp., Indianapolis, Ind., has moved to larger quarters at 1020 E. Michigan St. The new location combines offices and factory.

* * *

News Note: Keasbey and Mattison Co., Ambler, Pa., plans to install machinery in a new plant in St. Louis, Mo. Cost will be over $400,000.

* * *

News Note: International Harvester Co., Chicago, plans construction of a three story boiler plant and a one story compressor station as part of its new plant in Indianapolis, Ind. The cost will be about $100,000.

* * *

News Note: Cotta Transmission Corp. is planning the construction of a 40 by 60 ft. factory addition in Rockford, Ill.

* * *

News Note: American Brass Co., Buffalo, N. Y., has announced plans for an addition to its plant. The general contract already has been awarded.

* * *

News Note: Linde Air Products Co., New York City, has purchased a site in Lorain, Ohio, where it plans to build a factory. Estimated cost of the building is $40,000.

SPECIFY

PITTSBURGH TUBE COMPANY

PREFERRED BY PLUMBING AND HEATING MEN

PITTSBURGH TUBE

Avoid Pipe Risks

As a plumbing and heating contractor, your greatest business asset is your reputation. If you install materials of questionable merit you stake this reputation against questionable performance. It's a long chance to take and the odds are invariably stacked against you. This is expressly true of pipe.

By specifying PITTSBURGH TUBE for every job involving piping you take the safest, surest means of avoiding the risks . . . the grief . . . the excess labor . . . the loss of profits . . . to which the installation of inferior pipe inevitably leads. Then, too, to install PITTSBURGH TUBE is to strengthen your reputation among your customers and among your prospective customers.

Avoid pipe risks. Specify the wrought steel pipe that is PARTICULARLY adapted to the plumbing and heating industry . . . specify PITTSBURGH TUBE.

PITTSBURGH TUBE CO.
PITTSBURGH, PA.

Oil Burners—

(Continued from Page 90)

ers, etc. The temperature is recorded after such time as several readings, taken at five minute intervals, indicate no further rise. Do not open boiler doors while determining stack temperatures because as previously indicated such readings will be in error. The same stack opening may be used for making the gas analysis.

The volume determination of the gases in a gaseous mixture by selective absorption was first introduced by the eminent French chemist Orsat in 1874. In recognition of his work the gas analyzer is frequently called an "Orsat". The service mechanic engaged in oil burner repair and adjustment should be familiar with its use and regard it as the "micrometer" of his trade. The eye is a very poor substitute for the gas analyzer and should be used only for determining the character of the fire.

From extensive research by investigators it has been found that for practical purposes the determination of carbon-dioxide concentration together with stack temperature serves to indicate the efficiency of the heating plant.

GENERAL CARE

As with any measuring tool care must be exercised if accuracy is to be maintained. Since the volume of gas required for an analysis is rather small (generally 50 cubic centimeters) the analyzer must be tight. The slightest leak in the sampling tubing or any of the various connections, valves, etc., will cause a considerable error in the result. Frequent check of the rubber tubing should be practiced by the following suggested method. By means of the aspirator bulb, subject the tubing to pressure holding one end closed and submerging the tubing and the bulb in water. This procedure will disclose any leakage much the same as in the testing of inner tubes of tires. The valves may be checked by setting them to hold water or a chemical reagent to the index marks of the respective capillary tubes, (chemical in the pipette, water in the burette). Should the valve leak, the liquid will settle. A good practice is to keep the liquids up in the tubes as this maintains a check and at the same time keeps the surfaces wetted.

The spilling of the chemical reagent on hands or clothing or drawing it into the manifold and measuring burette should be avoided carefully. If the reagent should get into the burette the water must be changed before a sample can be analyzed accurately. Fresh chemical reagent is required occasionally and can be obtained readily from the manufacturer in any quantity. This is more satisfactory than attempting to mix your own.

When the gas analyzer is to be transported in freezing weather care should be exercised to prevent the freezing of the water within the jacket of the burette to prevent total destruction.

When an analysis is to be made, a convenient length of pipe or copper tubing should be introduced into the smoke pipe by means of the hole already described. The end of the sampling tube within the flue should open

(Continued on Page 160)

Advertisements like this are "TUNING IN" MORE BUSINESS FOR YOU

I can "Tune-in" any temperature on my new Gas Range
AUTOMATIC HEAT CONTROL
"A MIRACLE OF CONVENIENCE" say women of the modern automatic gas range. Oven heat control takes the guesswork out of baking. Now gas ovens give you the exact temperature you want all the way up to 550°—and preheat twice as fast as your old range. Many new gas ranges have clock control which turns your oven on and off while you are out shopping. Oven walls are insulated to keep heat in—so your kitchen is cooler, more comfortable. This new insulation makes economical gas cookery thriftier than ever.
FLEXIBLE TOP HEAT, TOO
ONLY WITH GAS can you get instant intense heat—then reduce it to any degree you want. Top burners on the modern gas range light automatically. They are simple to operate—never wear out. Marvelous new simmer burners enable you to do "waterless cooking"—which preserves the true, full flavor of vegetables and their valuable vitamins. Pots stay bright when you cook with the clean blue gas flame. Porcelain enamel top burners are easier to clean. In fact, the whole range can be cleaned in easily a dishpan plate.
SMOKELESS BROILER
THE MODERN GAS RANGE has introduced the double-quick broiler that practically cuts broiling time in half. New high broiling temperatures seals in more flavor, cooks meats through as they brown outside. There's no smoke to soil kitchen walls and curtains—new perforated grills drain off fats and keep them away from the flame. The broiler in the modern gas range slides out in a drawer for easy turning. In appearance the handsome new gas ranges are unsurpassed. Let one dress up your kitchen and make cooking pleasanter and more economical.
FREE!
GAS IS YOUR QUICK, CLEAN, ECONOMICAL SERVANT

GAS for house-heating, water-heating and refrigeration, as well as for cooking, is being sold to American home-owners through striking color pages such as this!

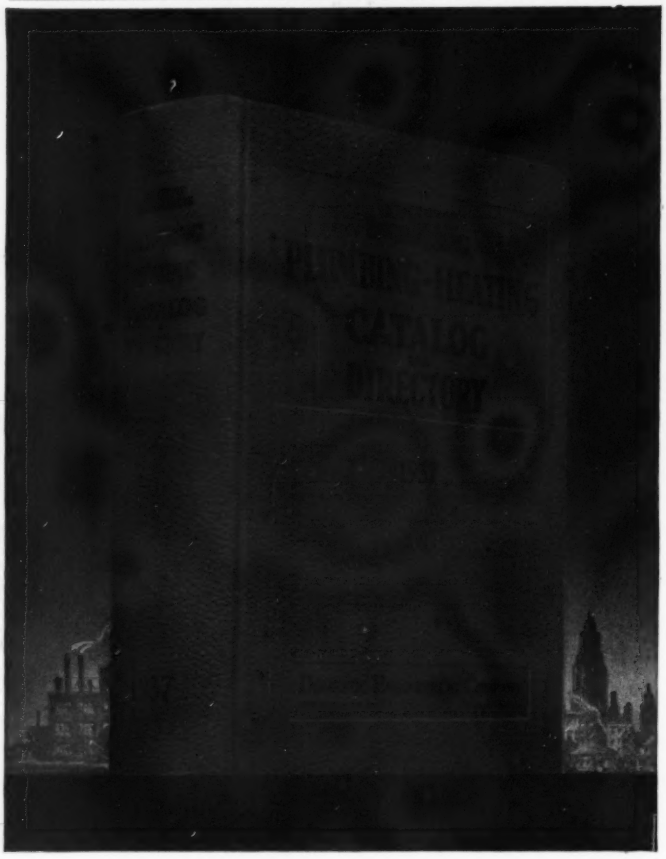
Don't forget that this campaign marks the *second* year of concerted action by more than 700 Gas Companies—action which is building up an increasing demand for gas equipment from coast to coast.

Get in touch with your local Gas Company today. Find out how they can help you convert this great national advertising campaign into better sales and increased profits for you.

AMERICAN GAS ASSOCIATION

10 GREAT NATIONAL MAGAZINES NOW HELP YOU SELL GAS APPLIANCES

Be sure the Gas Appliances you sell carry the approval Seal of the American Gas Association Laboratories



Why

we recommend and use

DOMESTIC ENGINEERING PLUMBING-HEATING CATALOG & DIRECTORY

Typical Comments Recently Received From Wholesalers, Buyers and Specifiers

"Think that the Catalog Section of this year's directory is one of the best ever published, and hope that our continued support will enable the sponsoring manufacturers to keep up the good work."
Syracuse, N. Y.

"For the purchaser of plumbing and heating materials, to be without this directory would be comparable to a ship without a rudder."
South Bend, Ind.

". . . each year this fine Book seems to get greater use throughout our departments."
Quakertown, Pa.

"This is more than a Catalog and Directory; it may be classed as an able assistant to the Plumbing and Heating Supplies buyer."
Atchison, Kan.

"We wonder if the manufacturers realize how generally it is referred to . . ."
Long Beach, Calif.

". . . we feel that a good plumbing and heating supply house could not be run without this valued Catalog-Directory."
El Paso, Tex.

"We are particularly interested in the Manufacturers' Catalog pages describing their products."
Kansas City, Mo.

". . . we unhesitatingly recommend Domestic Engineering to the Manufacturers as the best means of placing their items before the market."
Chicago, Ill.

"We are very much in favor of the Domestic Engineering Catalog, recommending it to our manufacturers . . ."
Manchester, N. H.

". . . has actually become a necessity."
Yonkers, N. Y.

"We are pleased to note that this reference book is growing and that more manufacturers are listing their products therein."
Rockford, Ill.

the 286 Manufacturers

shown on the opposite page have co-operated with the buyers and specifiers of plumbing and heating materials by incorporating their buying and specifying information in Domestic Engineering Plumbing and Heating Catalog-Directory and 1937 Mid-Year Supplement.

the Buyers and Specifiers

consider this gesture a positive and practical necessity in making products easy to buy. Catalog material, in the consolidated form, is definitely an appreciated service when it is placed in the handy-easy-to-get-at consolidated catalog—Domestic Engineering Plumbing and Heating Catalog-Directory.

the "Big Orange Book"

Domestic-Engineering Plumbing and Heating Catalog-Directory is an established and recognized cog in the smooth operation of the buying and specifying machinery of the Plumbing and Heating Industry.

DOMESTIC ENGINEERING COMPANY
Catalog-Directory Dept.
1900 Prairie Avenue • • • Chicago, Illinois

Says a well known wholesaler

"To us, it has become the first place to look for information pertaining to the plumbing and heating business."
Newark, N. J.

Abingdon Sanitary Mfg. Co.
Ackerman-Johnson Co.
Acme Asbestos Covering & Flooring Co.
Acme Frost Proof Closet Mfg. Co.
Acme Metal Products Corp.
Acme Shower Curtain Co.
Adams Engineering Co., Inc.
Adjustable Bearing Plate Co.
Afco Mfg. & Sales Co.
Ajax Radiator Enclosure Co., Inc.
Alberene Stone Corp. of Virginia
All Metal Mfg. Co.
Allen Co., L. B.
American Blower Corp.
American Brass Co.
American Die & Tool Co.
American Gas Products Corp.
Ames Mfg. Co., Frank
Anderson Products, Inc.
Armstrong Bros. Tool Co.
Armstrong Mfg. Co.
Atchison Specialty Mfg. Co.
Autovent Fan & Blower Co.
Ayling & Reichert Co.

Badger & Sons Co., E. B.
Barber Gas Burner Co.
Bead Chain Mfg. Co.
Beaton & Cadwell Mfg. Co.
Beaton & Corbin Mfg. Co.
Beaver Pipe Tools, Inc.
Bell & Gossett Co.
Benson Co., Inc., Alexander R.
Bernz Co., Inc., Otto
Biggs Boiler Works Co.
Black & Decker Mfg. Co.
Blake Specialty Co.
Blue Seal Chemical Co.
Boosey Mfg. Co., Norman
Bradley Washfountain Co.
Breckwoldt & Son, Inc., Julius
Bridgeport Brass Co.
Brunswick-Balke-Collender Co.
Buffalo Meter Co.
Bullard Specialty Co.
Burnham Boiler Corp.

Camden Pottery Co.
Capitol Mfg. & Supply Co.
Carey Co., Philip
Carty & Moore Engineering Co.
Cascade Foundry Co.
Case and Son Mfg. Co., W. A.
Cash Valve Mfg. Corp., A. W.
Celina Mfg. Co.
Chase Brass & Copper Co.
Chelsea Metal Stamping Co.
Cheney Co.
Chicago Granitine Mfg. Co.
Chicago-Wilcox Mfg. Co.
Citrushine Mfg. Co.
Cleveland Brass Mfg. Co.
Cleveland Heater Co.
Coleman, Allan J.
Coleman Equipment Co.
Columbia Radiator Co.
Commonwealth Brass Corp.
Compound Injector & Spec. Co.
Concrete Fixtures Co.
Consolidated Brass Co.
Coyne & Delany Co.
Curtin Valve Co., A. F.

Dart Mfg. Co., E. M.
Davis Engineering Corp.
Decatur Pump Co.
Deegan Mfg. Co., E. J.
Delaware Sucker Rod Co.
Deming Co.
Denier & Co., James C.
Detroit Lubricator Co.
DeWitt Products Corp.
Dole Valve Co.
Dresser Mfg. Co., S. R.
Duriron Co., Inc.

Eagle-Picher Lead Co.
Eastern Foundry Co.
Economy Pumpng Machinery Co.
Elkay Mfg. Co.
Elkhart Foundry & Machine Co.
Elkhart Iron Works
Enbee Mfg. Co.
Erie Tool Works
Eustis Mfg. Co., J. P.
Evry-Use Products, Inc.
Excelsior Leather Washer Mfg. Co., Inc.
Excelsior Tool and Machine Co.
Excelso Products Corp.

Fedders Mfg. Co.
Fiat Metal Mfg. Co.
Fitzgibbons Boiler Co., Inc.
Flannery Co., P. J.
Florence Stove Co.
Franklin Rubber Corp.
Fritz Mfg. Co.

Gardiner Metal Co.
General Blower Co.
General Ceramics Co.
General Wire Spring Co.
Gerity-Adrian Mfg. Co.
Gerstein & Cooper Co.
Globe Machine & Stamping Co.
Goetze Gasket & Packing Co.
Grabler Mfg. Co.
Grinnell Co., Inc.

Haas Co., Philip.
Harris & Co., Arthur
Healey Brass Foundry Co., Peter
Healy-Ruff Co.
Hedges-Walsh-Weidner Co.
Hempstead Mfg. Co.
Hercules Chemical Co., Inc.
Hindley Mfg. Co.
Hoffman Specialty Co., Inc.
Hollands Mfg. Co.
Holmberg Steam Trap Co.
Holsclaw Bros., Inc.
Hotstream Heater Co.

Imperial Brass Mfg. Co.
Insto-Gas Corp.
Isert Co., Inc., John H.

Jenkins Bros.
Jenkins Mfg. Co., Inc.
Jennison Co.
Jewel Mfg. Co.
Johns-Manville

Kainer & Co.
Kam Water Heater Mfg. Co.
Kaustine Co., Inc.
Kennedy Valve Mfg. Co.
Ketcham Mfg. Corp., G. M.
Kewanee Boiler Corp.
Key Co.
Kitson Co.
KleenSan Corp.
Knott Mfg. Co.
Kokomo Sanitary Pottery Corp.
Koven & Brother, Inc., L. O.
Kuhn & Jacob Mould. & Tool Co.
Kuhns Bros. Co.

Lattner Mfg. Co., P. M.
Lavelle Rubber Co.
Lawson Co., F. H.
Leavitt Machine Co.
Lee Brothers Foundry Co.
Lehman Sprayshield Co.
Leonard-Rooke Co.
Levow, David
Lockport Fittings Co., Inc.
Lonergan Mfg. Co.
Lookout Boiler & Mfg. Co.

Malleable Iron Fittings Co.
Martin & Sons, H. P.
Marvel Machine & Brass Works
McCord Radiator & Mfg. Co.
McDonnell & Miller
Meer Made Products
Meneley-Diederich Co., Inc.
Miami Cabinet Division of Philip Carey Co.
Michigan Pipe Co.
Midland Metal Mfg. Co.
Midwest Piping & Supply Co.
Milwaukee Brush Mfg. Co.
Milwaukee Stamping Co.
Modern Shower Door Co.
Mouat Vapor Heating Co.
Mueller Brass Co.
Mueller Steam Specialty Co., Inc.

Nash Engineering Co.
National Boiler Improvement Co.
National Metal Products Corp.
National Pipe Bending Co.
National Regulator Co.
National Steel Construction Co.
National Water Lift Co.
Naugatuck Mfg. Co.
Never Split Seat Co.
New York Air Valve Corp.
Norristown Magnesia & Asbestos Co.
Nustone Products Corp. of New Jersey
Nye Tool & Machine Works

Oatey Co., L. R.
Ohio Brass Co.
Oster Mfg. Co.

Paine Co.
Patrol Valve Co.
Patterson-Kelley Co.
Peerless Heater Co., See Eastern Foundry Co.
Penberthy Injector Co.
Pennsylvania Range Boiler Co.
Peters Pump Co.
Petroleum Engineering Corp.
Philadelphia Stove Co.
Pittsburg Water Heater Corp.
Powers Regulator Co.
Production Plating Works, Inc.

Radiator Specialty Co.
Redlon, O. M.
Reichert Float & Mfg. Co.
Rhode Island Fittings Co.
Richmond Foundry & Mfg. Co.
Ridge Tool Co.
Rife Ram & Pump Works
Rival Strap Corp.
Riverside Boiler Works, Inc.
Riverside Foundry and Galv. Co.
Robertshaw Thermostat Co.
Rockford Brass Works
Ruberoid Co.
Russell & Co., W. A.

Sall Mountain Co.
Sands Mfg. Co.
San-Equip, Inc.
Sanitary Company of America
Sarco Co., Inc.
Scaife & Sons Co., Wm. B.
Scott Valve Mfg. Co.
Self-Cleaning Strainer Co.
Selfridge-Norton Mfg. Co.
Sherwood Brass Works
Simplex Mfg. Co.
Skinner Co., Herbert G.
Skuttle Co., J. L.
Slater Mfg. Co.
Smooth-On Mfg. Co.
Spang, Chalfant & Co., Inc.
Spencer Thermostat Co.
Stahot Heater Corp.
Standard Asbestos Mfg. Co.
Standard Brass Mfg. Co.
Star Mfg. Co., Inc.
Steel Kitchens Corp.
Sterling Engineering Co.
Streamline Pipe & Fittings Co.
Stuart Oil Co., D. A.
Sturtevant Co., Inc., B. F.
Super Solder Co.
Superior Flake Graphite Co.

Taco Heaters, Inc.
Taylor Co., Halsey W.
Teck Mfg. Co.
Thompson & Son Co., Henry G.
Thrush & Co., H. A.
Titan Valve & Mfg. Co.
Titusville Iron Works Co.
Toledo Pipe Threading Mach. Co.
Trimont Mfg. Co., Inc.
Trupar, Inc.
Tryco Products, Inc.
Turk Mfg. Co., Joseph

United States Gauge Co.
United States Rubber Products
U. S. Stoneware Co.
Universal Sanitary Mfg. Co.

Van Arnam Mfg. Co.
Vinco Co., Inc.
Vogel Co., Joseph A.

Wade Iron Sanitary Mfg. Co.
Wade Mfg. Co.
Warnock Mfg. Co.
Waterfilm Boilers, Inc.
Watts Regulator Co.
Webster & Co., Warren
Weis Mfg. Co., Inc., Henry
Wessels & Sons Co., D. D.
Western Metal Specialty Co.
Western Wire Products Co.
Wheeling Machine Products Co.
Whitlam Mfg. Co., J. C.
Whitlock Coil Pipe Co.
Will & Baumer Candle Co., Inc.
Williams-Bowman Rubber Co.
Williams & Co., J. H.
Wood Mfg. Co., Inc., John
Worcester Brush & Scraper Co.
Wusco Mfg. Co.
Wyckoff & Son Co., A.

Yeomans Brothers Co.

Zero Water Softener Mfg. Co.

The above Manufacturers have placed their Catalog Material in Domestic Engineering Catalog-Directory and Mid-Year

Supplement in order to save time for the Buyer of Plumbing and Heating items by making their products Easy to Buy.

15 years serving the Manufacturers, Wholesalers and Contractor-Dealers.

Supply

News of Men . . . Meetings . . . Companies . . .

Texas Wholesalers

• *Large attendance features meeting of Wholesale Distributors Assn. of Texas at Galveston—Dunlay elected president*

Large attendances and a number of well known speakers featured the convention of the Wholesale Distributors Assn. of Texas held in Galveston, Tex., recently.

At the executive session the following officers and directors were elected: C. A. Dunlay, Dunlay-Armand Co., Houston, president; Jack Allen, Dempster Mill Mfg. Co., Amarillo, vice president; W. F. Henderson, Crane Co., Dallas, vice-president; C. A. Dunlay, director; C. E. Johnson, Crane Co., Houston, director; Earl Milstead, Donnelly-White Co., Austin, director.

Executive Board

Exective committee members elected by the board of directors are: C. A. Dunlay, chairman; R. P. Turbeville, Morrison Supply Co., Fort Worth, and Carl Johnson, Crane Co., Houston.

Clayton Lee, president of the Texas Master Plumbers Assn., talked to the group. Beginning with a discussion of the hopes and plans of the state association he briefly touched its accomplishments: the increase in membership; work on the state code; encouragement of plumbing contractors to become better business men; strengthening of the line of distribution from manufacturer to wholesaler to plumbing contractor to consumer.

Walter Kohler, Jr., secretary and treasurer of Kohler Co., talked on legislation. He voiced a note of optimism for future business, pointing out the loss of buildings by fire and destruction and the lack of building during the depression as providing a great future market.

A. I. Wallace of the American Gas Products Corp., Chicago, outlined work being done along the line of developing new uses for gas. He traced the heating of homes from the central heating system to the space heater to the floor heater, and predicted that the trend will be back toward the central heating plant. Mr. Wallace mentioned that in some territories the sheet metal contractors are taking up the air conditioning business. The question of who is to do this type of work remains largely with the jobbers and the contractors. Appliance stores may be encroaching in the field.

Cooperation

Herman W. Steinkraus of Bridgeport Brass Co., Bridgeport, Conn., talked on the "differences between talking cooperation and tangible cooperation." Distribution and sales policies must be of national scope, said he. The difficulty in arriving at a satisfactory sales policy can be lessened greatly, however, if all wholesalers seek the same type of sales policy from the manufacturer.

George Hoffman, Crane Co., Chicago, spoke on the possible and probable effects of the Joint National Committee resolutions on the manufacturer. He compared the committee to army headquarters, pointing out that the committee would not do the fighting for the wholesalers, but that it would lay down the plans and assist in running the battle. The effectiveness of the committee's resolutions lie in the fact that it is a committee of wholesalers from over the entire country, looking to the establishment of better policies throughout the whole United States.

Other Speakers

Others who spoke briefly were Tom Taylor, Crane Co., Chicago; W. B. Neal, Somerville Iron Works, Chicago; C. A. Baldwin, Scoville Mfg. Co., Sturgis, Mich.; Mike Harvey, Tyler Iron Foundry Co., Tyler, Texas; Joe Sanders, American Foundry Co., St. Louis; H. E. Stevens, Cannelton Sewer Pipe Co., Cannelton, Ind.; and George E. Cooke, Atchison Specialty Mfg. Co., Atchison, Kansas.

Producers' Council

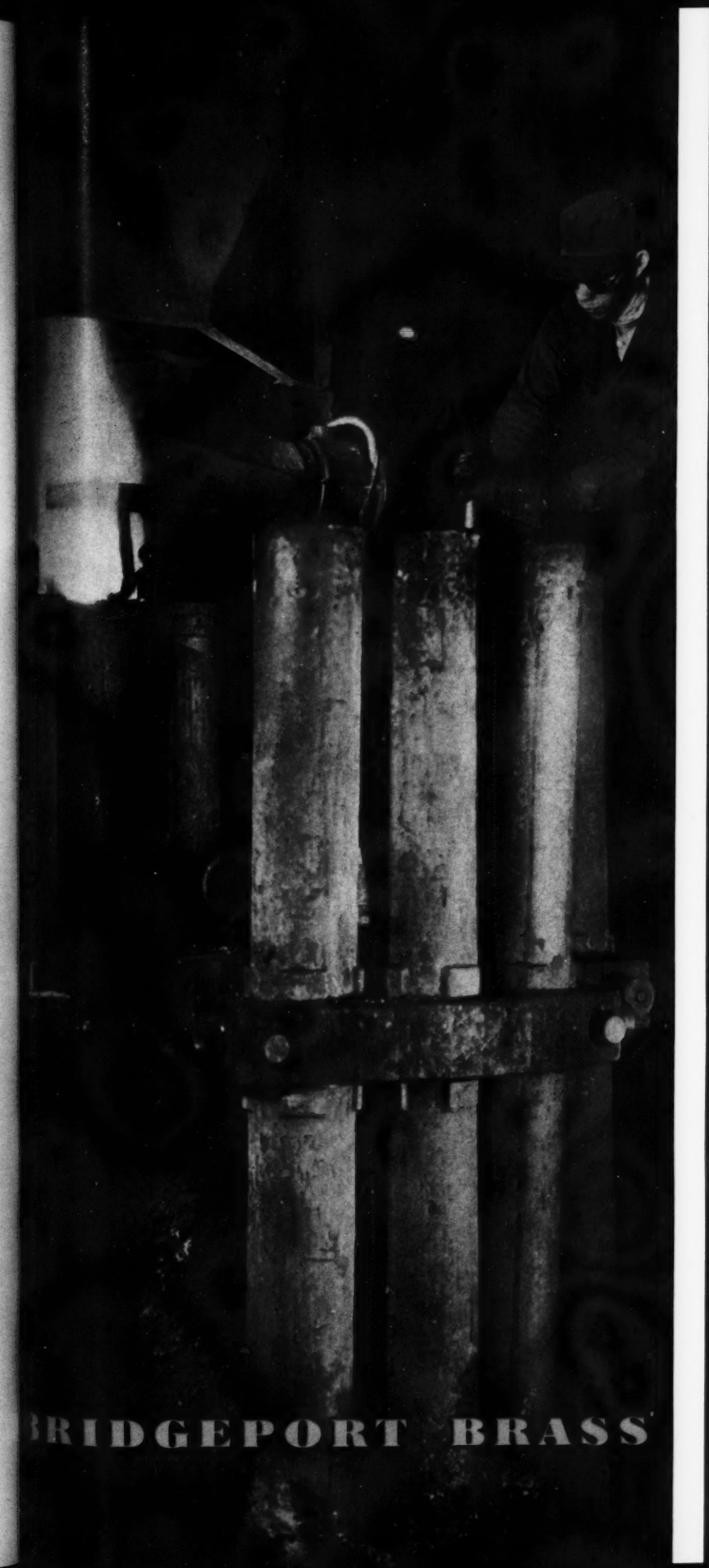
Seven companies—the International Nickle Co., National Radiator Co., the Flintkote Co., Detroit Steel Co., Curtis Companies, Gladding McBean Co. and Richmond Screw Anchor Co.—have been admitted to membership in the Producers' Council since its June meeting. These bring the total membership to 51.

"Most manufacturers," said Russell G. Creviston, president, "realize that the great increase in building in the past two years is going to continue. There also is coming a general realization that it is to their advantage, as well as to the advantage of the builder and building owner, to cooperate in supplying accurate information about building, and to promote fair trade practices."

The council, formed at the suggestion of the American Institute of Architects, has worked toward the elimination of ambiguous and uneconomical specification requirements, the "or equal" clause in specifications, and other practices held to be detrimental to producer and consumer alike.

N. Y. Golf

The Plumbing and Heating Golf Assn. of New York held a meet at the Hackensack Golf Club, Soldier Hill Road, Oradell, N. J., September 9. Those winning prizes were as follows: Class "A"—Lewellyn Power and Clause S. Coleman; Class "B"—Mortimer H. Smolka, Oliver Lanchantin and Francis Cronin; Class "C"—Andrew Milani and J. G. Gross. The guest prize was won by John Cronin. The next and last meet of the association will be held October 7, at Green Meadow Golf Club, Harrison, N. Y.



SOUND, CLEAN CASTINGS

FOR "PLUMRITE" BRASS AND COPPER PIPE

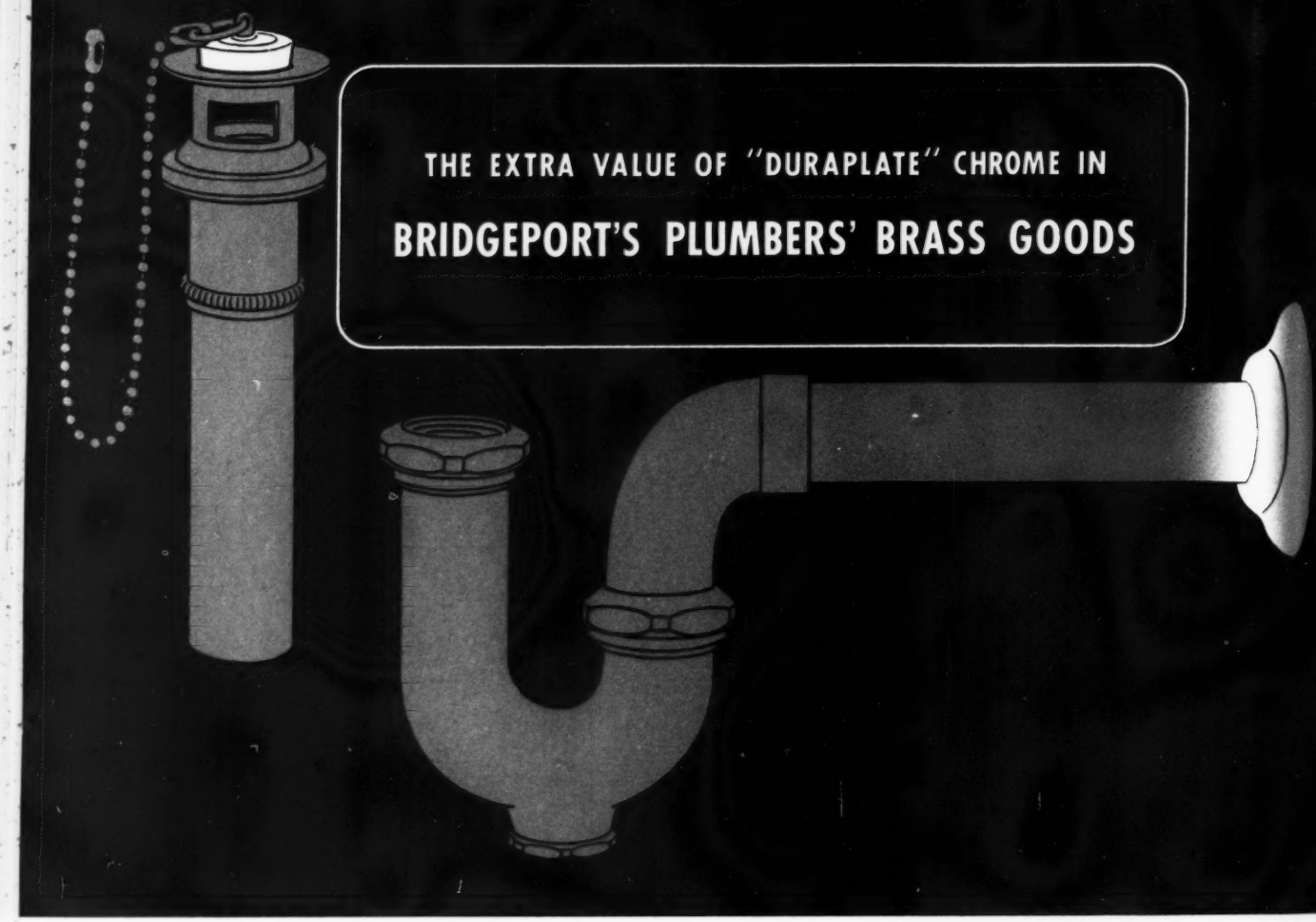
SKILL and experience are of paramount importance in the making of modern brass and copper pipe. Of equal importance are up-to-date equipment and mill facilities. That Bridgeport has all these in full measure accounts for the success of "Plumrite" Brass and Copper Pipe, and for the fact that it is the preferred pipe among a growing number of architects, builders and plumbing contractors.

Here the workman is pouring white hot metal into the molds from one of Bridgeport's great electric melting furnaces, which represent the latest and finest of methods for the production of sound, clean castings. For trouble-free installations, for satisfied customers, for quality that builds a reputation, put your faith in "Plumrite"—the pipe that is used in so many of the nation's most important buildings.

"Bridgeport"

BRIDGEPORT BRASS COMPANY
Bridgeport, Conn. • Established 1865

C O M P A R E



THE EXTRA VALUE OF "DURAPLATE" CHROME IN

BRIDGEPORT'S PLUMBERS' BRASS GOODS

1. P.O. Basin Plug with Slip Joint Tail Pieces—Furnished with highest quality rubber stopper, nickel silver bead chain and Mack Washer. Finished in Bridgeport's Duraplate Chrome.

2. Adjustable all Cast Body P Trap—Furnished with cast brass nuts, cleanout and heavy saw-tooth pattern flange. Finished in Bridgeport's Duraplate Chrome.

When Bridgeport sets out to make an improvement in brass goods quality you can be sure that it will give you more for your money. The development of Bridgeport's "Duraplate" Chrome is a typical example. Here we have spared neither effort nor cost to make this special finish the last word in durability. Instead of plating the chrome directly on the brass, as is sometimes done, we plate an extra heavy coat of nickel before plating with chrome. Is such extra precaution against time and wear justified? Yes, we say, because it insures your reputation and our own. It guarantees more years of service. It means added satisfaction to your customers. It inspires the fullest confidence in the work you do for them. There are other features, too, in the Bridgeport line, that combine to make it the finest on the market. We invite you to compare Bridgeport products, point by point, with any line you know. Examination will prove, beyond all doubt, their extra sales-creating value.

BRIDGEPORT BRASS

BRIDGEPORT BRASS COMPANY • BRIDGEPORT, CONN. • ESTABLISHED 1865

"Bridgeport"

Company Change

Effective October 1, the Hoffman Specialty Co. will take over all its own sales, distributing and promotional activities in the Metropolitan New York area. The company has set up, and will maintain, a staff of seven salesmen, headed by Arthur C. Roy, sales manager of the New York district. The district office is located at 50 Fifth Ave., New York City.

These men have been assigned to definite sections of the New York area as follows: Charles C. Bozenhard, to serve Westchester, Putnam, Duchess, Sullivan, Ulster and Orange Counties; John A. Shesler, to serve the Bronx; Martin Hirsch, to serve Manhattan; C. W. Spencer, to serve Brooklyn; Alfred M. Whitman, to serve Queens, Nassau and Suffolk Counties; Martin Christesen, to serve in New Jersey—Sussex, Passaic, Bergen, Morris, Essex Counties and Rockland County, N. Y.; and Charles Trambauer, to serve in New Jersey—Hudson, Union, Somerset, Hunterdon, Middlesex, Monmouth Counties and Staten Island, N. Y.

Porcelain Institute

The seventh annual meeting of Porcelain Enamel Institute, to be held in Chicago Oct. 11 and 12, will be followed on Oct. 13, 14 and 15 by the second Porcelain Enamel Institute forum at Ohio State University, Columbus, Ohio.

The first day of the annual meeting will be devoted to a presentation of the educational bureau and consideration of extent of participation in the 1938 program. The regular meeting session will come on the second day.

Adds to Plant

The assets of McShane Bell Foundry, Baltimore, were recently purchased by the Radiator Specialty Co., Charlotte, N. C., I. D. Blumenthal, president of the latter firm, has announced. The patterns and foundry equipment will be moved to the headquarters plant in Charlotte.

The Radiator Specialty Company recently acquired a textile factory in Charlotte for expanding operation. Located on a 50-acre tract, the plant has 80,000 sq. ft. floor space.

Open New Showroom

The Egyptian Supply Co. recently opened a new, modern showroom at Christopher, Ill. Many master plumbers and their families were present at the formal opening. Kohler Co. representatives from St. Louis, S. H. Gilmore and A. F. Walsh, attended.

New Egyptian Supply Co. Showroom in Christopher, Ill.

Seven separate bathroom groups are displayed in the showroom. The booths are walled with glass, ceramic tile, linoleum, imitation marble, imitation tile and other modern floor and wall coverings. Air conditioning equipment, heating units and fan and ventilating equipment are on display also.

The company has another office in Paducah, Ky. which is being modernized.

Advisory Committee

James R. Ray, manager of the Fritch Coal Co., Bethlehem, Pa. and president of the Pennsylvania Retail Coal Merchants Assn., and Edwin L. Collins, president of the Acme Coal Co., Utica, N. Y. and director of the New York State Retail Coal Merchants Assn., were elected to the advisory committee of Anthracite Industries, Inc. on Sept. 13. Both Mr. Ray and Mr. Collins have been active in retail coal circles for many years.

Building Congress

Three men active in the heating and plumbing industry have recently been appointed and inducted into office as members of the New York Building Congress board of governors. These are Arthur R. Herske, American Radiator Co.; F. P. Byington, Johns-Manville Corp.; Fletcher Collins, Wrought Iron Pipe Assn.

Smoke Ordinance

A recent amendment to the Chicago smoke ordinance, which is expected to lead to the rehabilitation of deteriorated heating equipment, provides for annual inspection of fuel burning equipment and sets up a schedule of fees for these inspections based on capacity. The amendment reads in part:

"An annual inspection of fuel burning equipment, for which certificates allowing the use of plant have been issued by the Department of Smoke Inspection and Abatement, shall be made to see that such equipment will do the work required and can be so managed that no dense smoke shall be emitted from the chimney connected to the furnace or firebox in violation of the provision of this chapter. . ."

The amendment further provides for revocation of the certificate allowing operation of a plant if it is found at the annual inspection that the equipment is in such condition that it cannot be operated without the emission of dense smoke in violation of the Chicago city ordinance.

N. E. Wholesalers

The annual Fall convention of Plumbing and Heating Wholesalers of N. E., Inc. will be held at Poland Spring, Me. October 9, 10 and 11. The business meeting will be held all day Monday, Oct. 11. E. F. Butler, Plumbing and Heating Wholesalers of N. E., Inc., 107 Arlington St., Boston, Mass. is in charge of reservations.

Promotion Program

The Kelvinator division of Nash-Kelvinator Corp., launched its promotion program for automatic heating equipment when four factory representatives took the 1937 line and merchandising program to distributors in ten Eastern

and Central cities. The meetings were held in Buffalo, Boston, New York City, Philadelphia, Washington, Cincinnati, St. Louis, Kansas City and Chicago.

The men who visited these cities were as follows: E. L. Sylvester, sales manager of residential air conditioning and automatic heating; B. M. Hanley, assistant sales manager in charge of automatic heating; F. J. Worden, commercial advertising manager; and F. Valtiere, engineering department.

Eastern Supply

The usual October meeting of the Eastern Supply Assn. has been postponed until January 1938. This annual get-together will be held on January 27 and 28 during the week of the Fifth International Heating, Ventilating and Air Conditioning Exposition. Headquarters will be in the Hotel Astor, New York City.

In the interim group meetings will be held at central points on the issue of manufacturer-wholesaler cooperation.

Office Changes

Larger quarters for three branch offices have been announced by Minneapolis-Honeywell Regulator Co. The Indianapolis offices are now located at 1134 N. Pennsylvania St. The new headquarters in Pittsburgh are 26th and Sarah Sts.

Nine thousand sq. ft. of floor space are available in the Boston branch, the address of which now is 797 Beacon St.

Anniversary

Wrought Washer Mfg. Co., Milwaukee, Wis., is this year celebrating the golden anniversary of its founding. Present officers are: Fred C. Doepke, president; Charles H. Disch, vice president; William F. Disch, secretary-treasurer; Eugene Caldwell, general manager.

Organized as the Nut & Washer Mfg. Co., the company has changed its name once and has moved three times.

Open Showroom

Murphy & Miller, Inc., composed of Robert E. Murphy and Harvey A. Miller, held the official opening of their new showroom for air conditioning, automatic heat and home equipment at 1331 S. Michigan Avenue, Chicago, on September 15.

The exhibit included a working display of air conditioning equipment, from small room coolers to the large condensing units and conditioners, as well as oil burners, stokers and boiler burner units.

There were several hundred visitors including heating and plumbing contractors and supply men at the opening.

R. E. Murphy and Harvey O. Miller at the opening of their new showroom

Heating Trades Golf

The second dual meet between the New England Heating Trades Golf Assn. and the new England Metal Products Golf Assn. was held at the South Shore Country Club, Kingham, Mass., on September 14. The latter association's team won by a score of 15 to 7.

A steak dinner was served in the evening, at which time members of the associations were introduced by W. B. Day, president of the New England Metal Products Golf Assn., and John S. Ross, president of the New England Heating Trades Golf Assn.

Prize winners were John Croning, Dick Lane, William Hayes, Warner Day, Ed. Rowe, William Taylor, Stanley Cady, Jim Mullin, Leo Purcell, J. G. Ross, John Lynch and William Weiss.

Scores for the day's play were as follows:

Embellished sign, one of several erected for F. R. Dengel Co., Milwaukee, Wis.

Lane	77	7	70
Hayes	77	7	70
W. Day	78	7	71
Papineau	93	11	82
McKeown	95	11	84
Cady	100	14	86
Donoghue	94	16	78
Lynch	91	16	75
Milliken	91	13	78
Rowe	90	19	71
Nicholl	103	20	83
Johnson	107	20	87
Wm. Taylor	93	21	72
Cronin	92	23	69
Hillman	100	25	75
Elliott	106	27	79
Mullen	100	27	73
Weiss	122	30	92
Coleman	104	24	80
Abbott	108	20	88
J. Carr	120	30	90
Corcoran	95	11	84
Chamberlain	101	24	77
Dunn	85	10	75
Klonower	89	14	75
Purcell	88	14	74
Ross	85	11	74
J. Lynch	88	14	74
Osborn	89	14	75
Boyden	96	16	80
Tuttle	100	16	84
Franklin	103	17	86
Flint	102	17	85
P. Taylor	99	18	81
F. Scott	101	19	82
Oleson	96	18	78
Lasher	100	22	78
Cousens	103	22	81
Bowkett	118	27	91
Buse	113	28	85
McCoy	106	28	78
Gelshenen	98	23	75

Embellished Signs

F. R. Dengel Co., plumbing and heating wholesalers in Milwaukee, Wis., have erected on heavily traversed streets several large embellished signs which display plumbing and heating equipment, kitchen equipment and other products.

The signs are well lighted at night. The signs give the appearance of a regular billboard with the exception of a room which is built into one side and which displays either plumbing or heating equipment set up as it would be in an actual installation.

Anthracite Meeting

Officers of Anthracite Industries, Inc. spoke on the occasion of that organization's day in the program of the recent New York State Retail Solid Fuel Merchants' Assn.

F. W. Earnest, Jr., president, outlined results of the year's program, with particular reference to education of the public. He spoke briefly about the activities of the field representatives, and praised the work being done by salesmen of producing companies. He emphasized that the future of the coal merchant is based on selling results rather than tons.

G. Gordon Cook, secretary and treas-

urer, described progress that has been made in various home and Federal housing shows during the year. Several new small dealer displays were shown.

A. F. H. Scott and Allen J. Johnson told of important work being done at the Anthracite Industries' laboratory. Mr. Johnson invited dealers to visit the laboratory. James P. Duffy, assistant to the president, displayed the Fall advertising program. Also announced was publication of a new equipment book for distribution to the public.

E. W. Smith, president of the H. B. Smith Co., mentioned in his talk the necessity of coal dealers becoming better acquainted with their customers so that they can discuss equipment more intelligently and call in heating contractors to handle the actual sale.

An explanation of the Anthracite Industries Merchandising School was made by Randall M. Snow, of the equipment division.

Personnel of The Sterling Sanitary Supply Co., Cincinnati, Ohio.: (front) O. J. Hensen, director; Wm. J. Hoar, vice president; Marie Ertel; F. L. Broerman, secretary and treasurer; Chas. Zinck, director; (rear) Harry Speckman; Andy Lenhoff, superintendent; J. C. Wilson, president and manager; Frank Zissinger; Emmet Fleming; and Frank Stick

Water Systems

A meeting of the National Assn. of Pump and Windmill Manufacturers will be held in the Sherman Hotel, Chicago, on October 3 and 4. Plans for the coming year's promotion of the sale of electric water systems will be discussed, along with other activities of the association.

Building Survey

That the dollar volume of residential building work handled by architects in the United States will show an average increase of 27 per cent in 1937 over 1936, and that an average of 74 per cent of architects' residential building clients in the first half of 1937 were interested in new construction rather than modernization, were among the findings of a survey of opinions by representative architects in forty- e states, completed recently by the Ruberoid Co.

Women, according to 82 per cent of the replying architects, are most frequently responsible for the selection of the general type of house to be built. Twelve per cent believed the husband's choice in this respect was most likely to be the deciding one, while six per cent indicated that the final decison was ordinarily a 50-50 compromise.

In considering materials for the exterior of the house, it was found that women are most influenced by appearance and men by first cost. Other factors strongly considered by both men and women were fire protection, insulation and upkeep cost.

The survey was based on replies to a questionnaire received from representative architects located in 168 communities of the forty-one states represented, including small cities as well as metropolitan centers.

Distributors Assn

The next meeting of the Southwestern Wholesale Distributors' Assn. will be held at Guaymas, Mexico, November 13, 14 and 15. Headquarters will be at the Hotel Playa de Cortes. Harry Bryant, chairman of the Tucson group, is making the arrangements.

Reservations are in charge of the Acting Secretary, P. O. Box 586, El Paso, Texas.

Plumbing Talks

Over 200 master plumbers were guests of J. C. Wilson, president, and W. J. Hoar, vice president, of the Sterling Sanitary Supply Co., September 21, in the new tap room of the Clyffside Brewing Company. The evening was devoted to a group of short talks and motion pictures on the subject of manufacturing process, base material, sale and installation of formed-metal plumbing fixtures. The speakers were R. B. Jenkins, sales manager of the Plumbing Ware Division of Briggs Mfg. Co., Detroit; Edward R. Grace of Grace & Bement, Inc., advertising counsel for Briggs; Ray Dadisman and Joe Bolles of the American Rolling Mill Co., Middletown, Ohio. The meeting was opened by George Bidenbach, president of the Cincinnati Master Plumbers Assn, who, with Mr. Wilson, welcomed the guests.

Color Standards

The Bureau of Standards has announced that the new commercial standards for colors for kitchen and bathroom accessories will be considered effective for new production from January 1, 1938.

The standard colors for bathroom accessories are white, bath green, orchid, ivory, maize, bath blue and royal blue. The colors for kitchen accessories are white, kitchen green, ivory, delphinium blue, royal blue and red.

A. C. School

To provide trained engineering personnel for the expanding market, Westinghouse Electric & Mfg. Co. will sponsor a month long air conditioning application engineering school for distributors at East Springfield, Mass., beginning October 4, according to S. F. Myers, air conditioning sales manager.

Included among the guest speakers will be C. S. Leapold, consulting engineer on air conditioning; Dr. E. Vernon Hill; F. M. Young, president of the Young Radiator Co.; and W. B. Henderson, executive vice president of the Air Conditioning Manufacturers' Assn.

Made Manager

James M. Kobabe has been appointed executive general manager for Lee B. Mettler Co., Los Angeles. He has been associated with the company 11 years as direct factory engineer and distributor in the Central States.

Housing and Distributing

• *Address given by Arthur R. Herske, vice president-general manager sales, American Radiator Company, New York, at the Boston Conference on Distribution, Hotel Statler, Boston, September 21.—"Existing channels of manufacturer, jobber, contractor and consumer must prevail."*

Why is a home the most difficult thing to buy?

First: Is it due to lack of home owner repetitive purchasing experience . . . to the fact that the average prospective owner has no former home-buying experience from which to profit?

Second: Is it because of inability to purchase a nationally trade-marked home anywhere in the United States?

Third: Is it because of a lack of evaluating standards which would permit purchasers to judge what they should get for their dollar?

Fourth: Is it because of a lack of mass production to provide low cost products, and because of a lack of organized selling to supply emotional stimuli to purchase?

Fifth: Is it because there is actually no such thing as a building industry, but only a group of thirty-one associated industries utilizing construction as their principal outlet?

Sixth: Is it because the major participating industries of cement, steel, brick, glass, and lumber are concentrating their research and their thinking on perfection of component housing parts, rather than on housing itself as a serious public problem?

Seventh: Is it because sporadic jurisdictional labor disputes have raised the wall of fear lest the home owner become embroiled?

Eighth: Is it because there is no housing-shopping market in local communities to appease the American public's insatiable hunger for comparing prospective purchases?

Ninth: Is it because the cost of construction labor has boosted home-building costs beyond reasonable reach of the great market of prospects?

Or tenth: Is it because high real estate taxes and land valuations, plus a general feeling of uncertainty as to the direction of property values, have helped to set up a psychic barrier against self-ownership of homes?

Well, perhaps this list represents a few of the reasons why a home is so difficult to buy. But before we make an indictment that might be based upon superficialities, let us take a look at the so-called housing industry.

First: This is really a collection of thirty-one specialized industries.

Second: It is an industry without a single factor selling direct from the raw material to the finished products.

Third: Distinct from other major industries, it is still in the craftsmanship class. A house must usually be made to order, as were, once upon a time, clothes and shoes. It cannot be ordered as an item of national distribution like a car or a refrigerator.

Fourth: The building industry is engaged in internal struggles for the supremacy of separate items. Cement, brick, lumber, and steel compete with each other and make no concerted effort to encourage the sale of the house.

Fifth: Because the building industry employs the largest group of skilled mechanics, restrictions are of necessity placed on the inclusion of new structural and mechanical products or assemblies which might tend to simplify home construction or reduce the cost of labor, or both.

Sixth: Building is the sole major industry which has gone through only the first three of the four cycles of consumer acceptance—durability, appearance, convenience, and comfort.

Seventh: The housing industry until just recently carried durability as its banner and continues to manufacture its products with an eye to lifetime usage, rather than the momentary appreciation of appearance or novelty on which other industries continue to base their success.

Products and Names

Eighth: Today in the housing industry a battle is being fought between names behind products and experience behind names. The tenacity of experienced manufacturers in clinging to their age-old standard of durability continues to be a protection to the prospective home owner.

This is the picture of the housing industry—of the barriers between it and the home-buying market—which a cursory analysis reveals.

Housing must consider those people who can and will buy, so let us look at some figures which should indicate our market:

The best available statistics reveal that 1933 incomes for 70 per cent of the American families were less than $1,500 and less than $3,000 for 93 per cent of the families.

For our purpose, let us divide housing into three classifications:

First: Slum clearance and blighted area rehabilitation, relating usually to families whose incomes are less than $1,200 per year.

Second: Housing for the normal-impulse buying group of ready-made equipment, now purchasing homes from speculative builders, whose family incomes vary up to $3,000.

Third: Housing for the self-expressionist group, or owner-builders, whose incomes are in excess of $3,000.

We may distinguish more clearly among these groups by comparing the third or high-income group to the man who goes to the merchant tailor and has his clothes made to order; the second group to the man who patronizes the ready-to-wear low-priced clothing stores; and the first group to the unfortunate individual who wears hand-me-down clothes or receives his garments from the Salvation Army or other relief agencies, and whose limited income precludes the possibility of his ever being able to buy new clothes.

Adequate Housing

So we may safely let the sociologist, the inspired housing theorist, the municipal housing bureau, provide through government subsidy, adequate housing for the first, or low-cost group, recognizing at the outset that they cannot buy. Adequate housing, of course, does not mean a duplication of the extravagant experiments for which so many millions have already been spent. It is essential that we recognize that even though housing for the lowest income group may in material measure be predicated on sociological theory, the doing of it is economic and failure to distinguish sociological ideals from economic realities can result in chaos.

Such basic realities have been faced by the older countries abroad and they have found that they can afford only minimum standards for this first group. Further, they are taking low-cost housing away from the cities and striving toward industrial decentralization by locating employment near homes. Slum rehabilitation and municipal housing bureaus can at the most contribute from 10% to 15% of an active annual housing volume, and neither the concept nor the actual accomplishment of this type of housing can materially influence the trends or the distribution channels of an industry based on profit.

We need spend little time in discussing the third or owner-built group relating to incomes in excess of $3,000. Such homes can and should continue to utilize the services of individual architects and rely upon builders' responsibility, architects' specifications, and manufacturers' experience in permitting the owner's whims to take form.

We come now to the second group, that group whose incomes vary up to $3,000. If we agree with the economists that the great part of this second group should pay no more than two and one-half times their annual income for shelter, we confine our thinking to homes costing from $2,500 to $6,500.

It is, of course, too well known that the housing industry, unlike the automobile industry, has neglected the mass market containing this second group. Of all the cars sold, 79 per cent are Chevrolets, Fords, and Plymouths. Thus, the automobile industry has been pointed toward the 93 per cent of our population, as contrasted with the home-building industry which has always in the past built for 7 per cent of the people. We have not at any stage of our development built homes for the lower income class. The American housing structure can be likened to an inverted funnel in which new construction enters at the top and as it ages, is successively handed down to the lower income groups.

Interesting Comparison

An interesting comparison can be made between our present policy of handing down second-hand housing and practices in the automobile industry. If the automobile industry pursued a similar policy, the country would be full of high priced cars from ten to fifteen years old, with few cars in the low-priced field. Instead of new Fords, Chevrolets and Plymouths, our average income groups would be driving around in ancient Lincolns, Packards and Cadillacs. Under a system of this kind, it is safe to assume that America's facilities for private transportation would be as poor as its housing.

We are indebted to C. W. Young for this interesting analogy, but our economist friend Streykman sounds a note of caution when he points out that more than twice as much of our national income is spent for prideful automobile transportation bought on future earnings as is spent for adequate housing.

Superficial reasoning may lead to the belief that mass production methods and aggressive merchandising tactics similar to those employed in the automobile industry may be immediately applicable to housing.

Mass Group in Housing

Referring to the second, or mass group, in the housing definition, is it not more reasonable that we look to the possibility of bringing together the individuals in this group able to buy a home and those craftsmen able to build a home? And before we give thought to new materials, new products and changes in distribution, let us determine why the buyer and the builder, as they exist today, may not profitably be brought together through the use of existing products and existing channels of distribution.

In view of the fact that a major part of the national wealth in this country lies in realty holdings and in view of the fact that home ownership is construed as a bulwark of strength against the "isms" of alien influence and despite the fact that cooperative organizations are today advocating a mobile army of workers, is it not economically justifiable to suggest to the industrial organizations of America that they extend every effort toward surveying their employees to determine those individuals with a reasonable continuity of employment who might be influenced to purchase a home?

There exist today adequate liason relationships between builder and buyer in the local administratives of Title II of the F. H. A. and through these offices thousands of regularly employed individuals in the U. S., falling in the great middle group, might and should be importuned to become home owners.

In our agricultural experiments we are confronted with starvation amid plenty. In housing, a public relations campaign of propaganda and an inspirational and educational program could relieve this starvation amid plenty by bringing those individuals with incomes in the second group, who have a reasonable continuity of employment and modest savings accounts, face to face with local building agencies, to the end that home ownership would receive the much needed stimulus to overcome susceptibility to alien importuning.

Industry's Obligations

A patriotic duty, an economic obligation and a community indebtedness devolves upon industry to first, encourage home purchase; second, locate eligible prospects and third, effectuate the impulse into a housing reality. Such a priming of the pump would require no subsidies, no experiment, no speculation. It would eliminate increased distribution costs through high commission specialty selling and would permit the housing industry to be basically a commodity industry, neither oversold nor over-advertised, nor short-lived.

Now why such a simple suggestion for adequate housing for the great middle group? Pierson and Warren have pointed out that a definite cycle, varying from seventeen to nineteen years, exists between peaks of building booms. They have similarly pointed out an average of thirteen years of so-called "lean pickings" and five years of profitable undertaking in building construction in each complete cycle. Is it not reasonable, therefore, to believe that one of the contributing factors in the lack of any large national home building organization is the fact that such an organization, under present housing purchasing tendencies, would be confronted with a maximum of five years of profit in twenty years of business?

Is it not reasonable to believe that the plan suggested above for bringing buyer and seller together in the mass group would tend to encourage the formation of such large national organizations in the hopeful belief that not only the building boom cycle, but the monthly seasonal variation of the building industry might be leveled?

Referring again to a comparison with the automobile industry, it must be borne in mind that even though it is true that 79 per cent of the cars sold are in the lower price range, it is also true that a great percentage of individuals buying those cars must borrow against the future to do so. It is clear then from a merchandising standpoint that a second factor besides just low price is involved—and that is emotional appeal.

Emotional Appeal

America responds to emotional appeal in selling and the automobile industry has spent millions of dollars in pressure merchandising and selling to perfect this emotional approach, toward which it is suggested that industrial organizations begin their efforts in behalf of housing. The so-called housing industry may be criticized properly for its lack of pressure merchandising and sales methods. But here too must be sounded a note of caution lest the expansion of the housing industry be predicated on sociological theories, on frenzied searches for new materials, on distribution in uncharted channels and not on simple, honest, minimum requirements for average families' demands in products that will last at least as long as the future earnings of the owner must be devoted to paying for them.

Unfortunately, perhaps, the American public no longer buys. Today we are sold. It is not without the bounds of reason to assume that the era of specialty selling and high cost distribution which has marked the success of the automobile industry would, if applied to the housing industry as presently constituted, soon eat up any savings that new materials, new methods or reduced construction costs might effect.

Now, let us consider trends. What of new materials? What of new products? What of pre-fabricated housing? What of mobile homes?

The sincere antipathy toward regimentation precludes the immediate consideration of pre-fabricated homes. The "peas in a pod" and the "goose-step" are not parts of the American way of thinking.

Chief of all trends is the trend toward comfort, the fourth item of consumer acceptance which the housing industry is now just considering. We have passed successively through eras of communication, transportation, steel and entertainment and as the colonization of the west carried with it railroad expansion, so will the trend toward comfort carry with it a new era in housing. Over a period of years we have steadily gone forward in demands for rapid transportation, for appearance and for convenience and today a laggard rears his head—the desire for comfort. Comfort, regardless of temperature, wind or water.

Broadening the Market

A newly awakened appreciation of comfort will do more to broaden the housing market than government subsidies, round table theories, or luxury-item competition.

With home comfort as the flag bearer, let us enumerate immediate trends in housing:

First: The integration of the associated industries in the housing group, pointing towards sales of homes, not parts.

Second: The availability of product assemblies, wall and window assemblies, sanitation assemblies, heating, cooling, cooking, drying, refrigeration, and clothes-washing assemblies from existing manufacturers through builders, stimulating trends towards standardization.

Third: The establishment of national assembly and selling organizations to market low price homes through industrial cooperation, sales-wise.

Fourth: The creation of communities, not neighborhoods.

Fifth: A coordinated public enlightenment and educational program, stimulating the patriotic and economic value of home ownership.

Sixth: Rationalizing the housing approach in lowest income groups by providing minimum standards, by locating housing according to planned approach and not according to present dwelling locations.

Seventh: The introduction of new materials and new products—first, for comfort, second for light, and third, for cost.

Eighth: The proper orientation of detached homes to reduce heating requirements and cooling loads.

Now, distribution, a rational approach to the solution of the housing problem, would lead to the conclusion that the establishment of national home-selling organizations might perhaps lead to the sale of assemblies from manufacturer to such national selling organizations.

Low income group subsidy housing may take whatever form the government shall elect. But fundamentally, existing channels of manufacturer, jobber, contractor, and consumer must prevail for high income groups and for locally acceptable individual construction.

Year round comfort in homes is within a year's reach of the great mass market and Mark Twain's old adage that "everybody talks about the weather, but nobody does anything about it" will soon be changed. Doing something about it will be the forerunner of an expanded housing industry.

Cost of Housing

No discussion of housing would be complete without a consideration of the cost of housing. Too many of us are under the erroneous impression that the high cost of housing tends to reduce construction volume.

It is only necessary to look at the records to determine that the greatest number of houses have always been built during the highest cost periods. Construction volume follows definitely the rental curve and when rentals become high enough and vacancies low enough, housing booms, regardless of cost. Roy Wenzlick of St. Louis, recognized today as one of the keenest analysts on construction costs and construction volume, has consistently confirmed this theory over a period of many years.

And so, here is our belief that:

1. An appreciation of comfort
2. The existence of a high rent and a low vacancy index
3. Bringing the buyer and seller together
4. Eliminating high-cost specialty selling
5. The establishment of national home-selling organizations, and
6. The use of an educational program by industrials to emphasize the value of home ownership

will combine to bring housing to a level consistent with living standards in America.

C. S. A. Fall Meeting

Roy Wenzlick, president, Real Estate Analysts, Inc., St. Louis, is to talk before the meeting of the Central Supply Association on the afternoon of October 28. This will be the final session of the convention—which has been set for October 27 and 28, in Chicago at the Morrison Hotel—and is the one to which manufacturers are invited.

Mr. Wenzlick has chosen for his subject, "The Outlets for New Buildings."

L. J. Kruse, president of the National Association of Master Plumbers, will come to Chicago from San Francisco to address the meeting on problems facing industry.

"Turn the Tide of Price Making" is the subject of John J. Calnan's talk on this program as president of the Plumbing and Heating Industries Bureau.

The entire program is being planned to stimulate buying, to promote the belief that prices will not be any lower, and to emphasize that plumbing and heating prices are not excessive.

View of Park and McKay (Detroit, Mich.) display at Michigan State Fair

New Distributors

Sales Representatives, Appointments

Warren Webster & Company, Camden, New Jersey, has announced the appointment of C. E. Scott as manager of the radiation and unit heater division of the sales department. This division, which has handled radiation for the past five years, has lately been expanded to handle also unit heaters. Mr. Scott is chairman of the engineering committee of Industrial Unit Heater Assn.

J. A. Zurn Mfg. Co., Erie, Pa., has announced the appointment of Lynn H. Fielding, Galt, Ontario as sales representative in the Province of Ontario, Canada. Mr. Fielding has long been associated in the Canadian plumbing industry.

L. H. Fielding

The Lincoln Electric Co. has announced the appointment of W. R. Parsons as manager of its welding sales engineering office in Pittsburgh, Pa.

Jas. P. Marsh Corp., Chicago, has announced the appointment of J. M. Appleton, Denver, Colo., as representative for the Colorado and Wyoming territory.

Republic Steel Corp., Cleveland, Ohio, has announced the appointment of four new distributors for its tubular products: Bluefield Supply Co., Bluefield, W. Va.; Ormond Plumbing Supply Co., Inc., San Antonio, Tex.; J. Graber Co., Houston, Tex.; and Morgan's Inc., Savannah, Ga.

Hoffman Specialty Co., Waterbury, Conn., has appointed R. A. Potts, Nashville, Tenn., and Joseph P. Stork, Detroit, Mich., as sales engineers for the company. Guy Hutchinson, executive vice president, made the announcement.

Anthracite Industries, Inc., New York City, has announced a number of additions to its field staff. These are as follows: Richard A. Protheroe to cover the Utica, N. Y., area; Gordon M. Campbell to cover the state of Michigan; Robert V. Anderson to be in charge of field activities in the south and particularly in Virginia; and Addison H. Cardwell.

Worthington Pump and Machinery Corp., Harrison, N. J., has announced the appointment of J. J. Summersby as general sales manager. His new duties will be in addition to the office he now holds, assistant to the vice-president of the company.

Thomas Devlin Manufacturing Co., Burlington, N. J., has announced the appointment of E. H. Barbour, 502 Statler Bldg., Boston, Mass., as New England representative.

Personals

Henry Cunningham, Jr., has been appointed sales promotion manager for Electric Furnace-Man, Inc., New York City.

Ralph E. Carlisle, Jr., Winchester, Mass., has joined the field staff of Anthracite Industries, Inc., to represent the organization in the Boston area.

E. R. Walsh, Jr., formerly associated with Herman Nelson Corp., has taken charge of the new domestic air conditioning division of the York Ice Machinery Corp.

A. I. Wallace, has been appointed to the position of vice president of American Gas Products Corp. Mr. Wallace has been connected with the corporation for the past ten years. His headquarters will continue to be in Chicago. W. T. Rasch, president, made the announcement.

A. I. Wallace

John H. Keane, has become connected with the Sheridan Brass Co., Cleveland, Ohio. Mr. Keane will cover the western Pennsylvania, eastern Ohio and West Virginia territory.

Joseph O'Connor, former president of Kieley & Mueller, Inc., New York, again is president of that company, after an absence of two years, during which time he was head of a large textile concern.

Paul B. Zimmerman, formerly with General Electric Co., has been made vice president in charge of sales for Norge Division, Borg-Warner Corp.

W. T. Mayfield, head of the W. T. Mayfield Company, Birmingham, Ala., has recovered from an appendicitis operation.

P. B. Zimmerman

Business Changes and New Incorporations

J. D. Johnson Co., Inc., has opened a new branch at 35 Main St., Poughkeepsie, N. Y. Henry M. Zook is manager and, in addition, continues as manager of the Ossining, N. Y. branch. The branch located at 176th St. and Park Ave., the Bronx, has been closed. F. J. Dinger of the Bronx branch has been transferred to the Ossining branch.

Steel & Tubes, Inc., has opened a branch office in Baltimore, Md. H. H. Smith is in charge of the new office.

Ideal Commutator Dresser Co., Sycamore, Ill., has announced the removal of its New York office to new and larger quarters at 61 East Eleventh St.

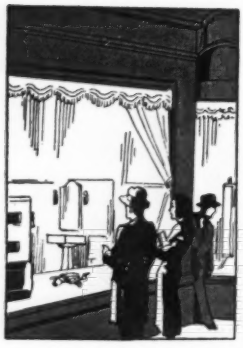
The Atchison Specialty Mfg. Co., Atchison, Kan., has announced that a sales office has been established in Chicago at 360 N. Michigan Blvd. The office is in charge of W. P. Evans.

V. M. Cruikshank Utilities, Sunbury, Pa., has announced that it has acquired two buildings formerly belonging to the Pennsylvania Railroad, to house its manufacturing equipment.

Grant Wilson, Inc., Chicago, has announced the opening of a new office and warehouse at 1607 Hennepin Ave., Minneapolis, Minn. The new office is in charge of George M. Craig and Frank B. Nimmo.

Central Foundry Co., New York City, has purchased the plant and equipment of the Bessemer Soil Pipe Works, Bessemer, Ala.

Evins F. Glore Sales Corp. has recently moved its office from 47-54 30th St., Long Island City to 1939 Grand Central Terminal, New York City.



Trade

News of . . . Men . . . Associations . . . Events . . .

A.S.S.E. Annual

- *McGonegal elected to presidency—Program presents various factors in growth of sanitation*

Declaring that the finest thing that could happen in the field of sanitary engineering would be the establishment of a universal plumbing code, A. R. McGonegal, newly elected president of the American Society of Sanitary Engineering, and chief of the District of Columbia plumbing inspectors, in an address before the Society's thirty-second annual meeting at the Mayflower Hotel, Washington, D. C., criticized the present code system as "the weakest link in our chain of armour against disease."

Mr. McGonegal pointed out that: "With the single exception of climate, the physical laws which apply are the same in Florida as they are in Alaska, in Maine as they are in California.

"In our great country we have some 3,800 sizeable cities and towns—we have 1,850 plumbing codes—and only 850 enforcement agencies, some of which are, to say the least, exceedingly sketchy. Some 60 cities have identical plumbing codes," he declared, "possibly differing only in some small detail and the other 1,800 codes differ one from the other, not only in small details, but in major matters."

Mr. McGonegal next called attention to venting and cellar drains.

B. O. Tilden, of Trenton, N. J., was unable to be present at the meeting and his paper was read by William C. Groeninger of Columbus, Ohio.

"Plumbing has played an extremely important part in the health and happiness of our present day civilization," Mr. Tildon pointed out in his paper. "For too many years now newspapers, magazines, and writers in general have for false modesty reasons side-tracked this subject. Had it not been for the vital fear of epidemics and other human disorders and diseases our people still would never have been driven to make the strides they have already made in developing adequate, efficient sewage systems.

History will prove that sanitation methods went back even into the old days of Egypt," he said, "and yet it has taken up to this time before modern civilization has finally come to realize the real necessity of modern scientific apparatus."

Continuing with his ten year series on the "History and Performance of the Watercloset," Mr. Groeniger added another chapter by revealing that he had developed in a lead model a new type of watercloset bowl shaped like the vortex of small streams and brooks which sometimes catch leaves in little eddies of water and suck them under to the bottom where they disappear and then appear again several feet from the point of disappearance.

Eddies Studied

The first time he noticed this phenomenon he stated, he looked for other such eddies and, after finding several of them, staked them off for study. The result of his experiment revealed that in every case the bottom of the stream bed at the particular point of the eddy on the surface of the water, appeared to be the same.

Groeniger's paper marked the closing Wednesday's session, and promptly Thursday morning convention delegates witnessed a surprise in the election of officers.

In the election of officers, the chairman of the nominating committee submitted to the delegates the names of officers nominated for election for the coming year.

After balloting the election results were as follows: president, A. R. McGonegal, of Washington, D. C.; first vice president, Walter Potter, of Mobile, Ala.; second vice president, A. L. Diesseroth, of Middletown, N. Y.; third vice president, Walter A. Dunn, of Minneapolis, Minn.; fourth vice president, E. C. Shavey, of Shreveport, La.; fifth vice president, Luke J. Devine, of Elizabeth, N. J.; sixth vice president, A. M. Douglas, of Dallas, Tex.; seventh vice president, Jere F. Doud, of Cincinnati, Ohio.

On the last day of the meeting, the first part of the morning was given over to the showing of two motion pictures depicting good and bad plumbing as

Officers for the coming year. Standing, left to right: W. Keith McAlfee, L. Cornelius, W. C. Groeniger, George Fitzsimmons, A. M. Douglas, E. C. Schavey, and A. L. Deisseroth. Seated, left to right: J. J. Crotty, Jere Doud, Edwin Cade, retiring president, A. R. McGonegal, newly elected president, Walter Potter, and Luke Devine

well as a special film entitled, "Certain Important Hydraulic, Pneumatic and Bacteriological Considerations of Back Siphonage."

Immediately following the showing of the two films, Ed. Penfrase, of the Copper and Brass Research Assn., delivered an address on "Features of Back Siphonage," during which he termed cross-connections unsafe and hazardous to health.

"There are any number of factors attached to water systems which may cause disease or pollute the water," Mr. Penfrase stated.

"I am happy to say," Mr. Penfrase continued, "That in our country people have no fear of using water for drinking or bathing for here, sanitary engineering has developed to such a high degree that thought of ill health from these causes never occurs in their minds; but we must continue our fight. Water purified at its source may become contaminated at any place along the line."

Some of those in attendance at the annual convention of the American Society of Sanitary Engineering. Standing, left to right: Walter Smith and George J. Dehn. Seated, left to right: Mrs. Joseph J. Crotty; Mrs. L. J. Devine; Mrs. George J. Dehn; and Mrs. Walter Smith

Education

Urging a campaign of nationwide education in regard to plumbing, Dr. Wilmer H. Schultze, of the Health Department of Baltimore, Md., told delegates that such education was necessary even among the plumbers, architects and builders as well.

"Along these lines," Dr. Schultze said, "We in Baltimore have installed a complete set-up in our laboratory in an effort to demonstrate back siphonage. Our program up to the present time can well be explained in three classes, namely: prevention; correction; and education."

Dr. Schultze pointed out that with proper inspection there should be no danger of cross connections. In Baltimore at the present time, he said, all plans for building, reconstruction, etc., have to be submitted to the health department for approval before the job is begun.

"Unfortunately the ordinance requiring this procedure has only been in effect a short while." Dr. Schultze stated. "Since it is not retroactive we have some buildings where cross sections exist which were put in before the ordinance became effective."

"House Trailers and Trailer Camps, a Sanitary Problem," was the title of a paper presented by T. M. Dugan. The following points were made in the paper:

"Few people realize to what extent the number of trailers has grown; for instance, it was conservatively estimated that in 1935 there were some 25,000 trailers on the road. In 1936, The American Automobile Assn. estimated 300,000 house trailers (home or custom built) in circulation and that approximately 1,000,000 people were living in them for at least vacation periods.

"Dr. R. R. Spencer, senior surgeon of the United States Public Health Service, said, 'The three major problems confronting the modern gypsies, who call a trailer their home for weeks or months, are: pure water; safe milk; and sanitation.'

"It seems to me that here is a distinct challenge to those who are concerned with the sanitary question of proper living quarters, and that we, as an organization, should welcome the challenge and take definite steps to study the problem and, from the result of this study, attempt to evolve a suggested satisfactory minimum code or regulation to care for that portion of the house trailer subject that concerns the sanitary engineer or plumbing inspector.

Careful Approach

"Unquestionably, there may be real potential merit in the present and future house trailer, and it behooves an intelligent, careful approach to the question by all authorities having jurisdiction over housing in any manner. Trailers, no doubt, are practical and useful and have come to stay with us for a long time. The manufacturer who builds these units, I believe, would be anxious to cooperate with any agency or group that has purity of motive, prompted by the protection of private or public health and, hence, should assist in seeing that their equipment is safe and that promiscuous use does not injure sale of their product.

"The United States Government, through the Resettlement Administration, has recognized the problem of camp sites and is engaged in the construction of five trailer camps in the state of Maine and in many of the National Parks. Tourist camps are being revamped to meet the trailers' specific needs. Several states have promulgated regulations that deal with factors connected with trailer camps and, for the time being, seem to have a yardstick to control the nuisance feature or hazard to health. A goodly number of cities, in order to assure health, social, and economic security, have found it necessary to adjust local ordinances so as to be able to cope with some of the many problems that arise from having to handle their new trailer guests.

"Camp sites within the corporate limits of a city that has a plumbing code and local plumbing inspector are easily governed from a health standpoint. However, often, for obvious reasons, camp sites are located just outside governmental area of a city and, due to a lack of jurisdictional control by an authoritative body, the camp may prove a social and health hazard nuisance to the adjoining tax-paying, regulated city people. Thus, we see a keen necessity for a wide, intelligent viewpoint of control. Therefore, the problem becomes more than local and calls for coordination of all forces within the state that have to do with health protection.

Special Regulation

"The set-up cannot be handled just as a tourist camp regulation, for the character of the use of present trailers makes for more permanence than the casual transient needs. Trailers, it seems, present still another problem, for here we see a more or less stable, compact home-on-wheels, setting up a new community life for an indefinite period. The permanency of location is even recognized in some communities

by making provisions in local schools for migrants' children."

E. R. La Fond presented a paper entitled, "A Short Thesis on Plumbing Codes," excerpts of which follow:

"The subject of Plumbing Codes, is one of the most vitally important subjects concerning the plumbing industry because, through its existence and enforcement, the entire health, morale and sanitary plumbing principals of our profession are either upheld or neglected, and therefore any amount of time and effort spent in the analyzing of its benefits, and the bolstering of its weaknesses is time valuably spent. For this reason this paper has been prepared.

"Its purpose is not to foist any direct opinion as to what any indivdual code should be like, but rather to give food for thought along the line of what may be done by ourselves to overcome some of the obstacles and hardships which are encountered in the formulating and revision of plumbing codes, and if possible to create a feeling of responsibility among our members in furthering this objective.

First Obstacle

"First and most important of the obstacles found in the formulating of codes, especially new ones, is the feeling that immediately arises in the thought of the laymen and public in general that someone interested in the adoption of this code regulation is interested for some personal reason, either for the profit derived through the sale of material or that the additional work required under the regulations, may bring greater profit to him.

"Another difficulty has been the lack of an available authoritative source of information, which is necessary in the construction of a practicable and workable code. This does not mean that articles may not be gleaned from other various existing codes, for that is exactly what has happened in the past in many cases. And there lies the reason why many codes have been rejected before their passage, or parts have been revised afterward; it has been a simple process to extract parts of one code and add parts to another. But the results obtained from this method have often proved to include conflicting requirements, inadequate provisions, unworkable ideas, misinterpreted intents and illegal restrictions.

"Every plumbing inspector working under such codes knows that certain articles written therein would be better reworded, revised or even rejected to relieve the headaches he encounters in trying to do his duty, according to his knowledge and experience. In following the requirements of this code the enforcing authority may be called upon to give the reasons for the enforcement of some such regulations. Then by giving his honest opinion and discrediting the value of some article in the code as it is written, he may jeopardize the importance of the entire code in the eyes of the public.

"Sometimes in compiling a plumbing ordinance by selecting articles from existing ordinances, insufficient thought is given to the necessary diversion in requirements, such climatic differences as in warm and cool sections of the country, requirement differences for city and country plumbing, and localities having two types of sewers.

Outside Influence

"Outside influences have also been known to change provisions in codes, the only thought given in the matter being the saving of a few dollars, with no thought of the protection this provision might give.

"Another great detriment to the enactment and proper enforcement of sanitary plumbing regulation is the political attitude taken by political parties toward codes and enforcement, belittling their importance, through the lack of knowledge of their value in the protection of public health. We have all seen time and again where honest, capable plumbing inspectors have been replaced by others with lesser qualifications."

J. B. Gordon, director of sanitary engineering, District of Columbia, then gave a talk, portions of which follow:

"It has been my experience that the average householder is aware of, and familiar with, the operation of the sanitary fixtures of his dwelling only to the extent that the waste from these fixtures is discharged into the public sewer system. He little realizes that here in Washington this sewer system comprises a vast underground network, more than 1,125 miles in length, all converging on the District's new Sewage Treatment Plant.

"For descriptive purposes, the plant may be considered as two units, (1) the sewage treatment unit and (2) a sludge conditioning unit. In the sewage treatment unit, approximately 80,000 lb. of putrescible solids are separated from the sewage every day. The disposal of these solids, without nuisance, requires a solids treatment plant referred to here as the sludge conditioning unit. The first or sewage treatment unit consists of a pumping station, grit chambers, grease separating tanks and sedimentation tanks.

"When sewage reaches the plant, it passes into the pumping station from which after being lifted about 20 ft., it flows through the various units by gravity. This station is necessary because Washington is not gifted with the ideal topography of many other American cities. The plant is designed to handle an average flow of 130 mgd.; however, in order to meet peak demands, the pumping station has been equipped with one pump of a capacity of 80 mgd.; another of 40 mgd.; and two of 60 mgd.

Oakland Organizes

The Master Plumbers Assn. of Oakland (Calif.) has been organized recently. The incorporators are R. D. Fearey, F. A. Gottstein, N. J. Previati and William P. Rouse. The address is 536 24th St., Oakland, Calif.

New Association

The Richmond Contra Costa County Plumbers Assn. has been chartered recently in Richmond, Calif. The incorporators are R. W. Timmons, W. H. Timmons and Richard Spierch.

Milwaukee Code

Leon M. Gurda, building inspector; Charles B. Bennett, city planning engineer; and Dr. Stanley Pilgrim, chief of the health department sanitary division, have been named on a special committee to investigate and make recommendations to the common council concerning the modernization of the Milwaukee, Wis., building and health codes.

According to the code, drawn before the days of air filters and humidifiers, any room where people live or congregate must have window space equal to

Taken at recent outing of Master Plumbers Assn. of Nassau County, N. Y. 1. Mesdames William Kleb, B. Goldin, J. Neilson, A. Malmstedt, William Metcalf, J. Langdon, James Plant, V. Mazzota, Edward Seltzer, W. Langdon, R. Langdon; 2. Miss M. Kiolighn, Mesdames D. Mowatt, W. Foltete, George L. Bird, E. Floersch, R. G. Bookhout

at least 10 per cent of its floor space, and half the windows must be the kind that open to admit outside air.

Exposition

Increased volume of new buildng activities plus the tendency to recondition existing structures is reflected in the advance support being accorded the Fifth International Heating and Ventilating Exposition. Three floors of Grand Central Palace have been reserved for the exposition, to be held in New York City, January 24 to 30.

Appliance Sales

Purchases of household washing machines are increasing sharply in the upper price levels, according to statistics of the American Washing Machine Manufacturers' Assn.

Machines retailing at $70.00 or more showed 36.3 per cent increase in the first eight months of this year compared to the same period in 1936. Sales totaled 514,822 as against 377,600, or 41.3 per cent of all factory deliveries this year as compared to 31.3 per cent in the same eight months of 1936.

"Purchasing is moving definitely into the higher classifications of new models that are being featured throughout the industry, and away from the stripped and bargain-price machines of the depression days," said Joseph R. Bohnen, executive secretary of the association. "Purchasing also is settling down to conservative replacement and equipment buying, after the post-depression home-furnishing rush that sent washer totals to unprecedented new highs. The 1937 total thus far, 1,245,520, nevertheless is ahead of the 1,204,227 figure hit in the same months of 1936, when purchasing broke all records. Present buying shows small month-to-month increases but is not up to the peaks reached in 1936. Ironers continue their advance.

Reorganization

A. G. Williams, Independent Plumbers Company, Inc., was elected president of the Master Plumbers Assn. of Atlanta (Ga.) Inc., at a recent reorganization meeting.

Other officers elected were Don A. Limbert, vice president, and Charles Sockwell, Jr., secretary and treasurer. In addition to these officers the following will serve on the board of directors: C. W. Felton, D. N. Landers, G. D. Smith, L. R. Williams, L. B. Wingate and M. W. Wise. The organization will continue to operate under its old charter. About 35 were in attendance.

Eastern Trade Golf

The Eastern Trade Golf Assn. held a tournament at Oakland Golf Club, Bayside, Long Island, September 16. Guest prize winner was J. A. Edwards. Special trophies at the tournament included: the president's prize won by A. F. Hinrichsen; the vice president's prize won by T. W. Powers; the Hinrichsen trophies won by John Kjerner and G. E. Olesen; and a special prize won by W. F. Kennedy.

Regular medal play prizes were won by H. D. Faber, E. H. Page, R. G. Bookhout, E. A. Hubert, J. B. Garfield, E. F. Keating, C. P. Gabosch, L. Power, O. A. Lanchantin, H. J. Rose, T. M. Kellogg and C. M. Hunt.

Other scores which were turned in for the day were:

L. M. O'Neil	88	12	76
L. C. Klemmer	90	13	77
Walter Davis	90	13	77
G. E. Olsen	99	22	77
Max Herrmanns	101	23	78
Wm. Murphy	95	16	79
J. C. McDonald	98	19	79
Wm. Keplinger, Jr.	87	7	80
A. G. Mohrman	98	18	80
L. B. Harrison	109	29	80
R. G. Van Siclen	112	32	80
A. P. Keasbey	95	14	81

20 years ago, Ol' Boy "X" first said "hello" to the trade, and Boiler "X" has been the outstanding Stopleak ever since. Now, "X" introduces three sensational new products that you can use and depend upon equally well.

"X" FLUSH and RUSTOFF TREATMENT

A combination package of two interlocking cans. "X" FLUSH chemically cleans the system without the use of acids. "X" RUSTOFF keeps the boiler water clean while retarding the formation of rust and scale.

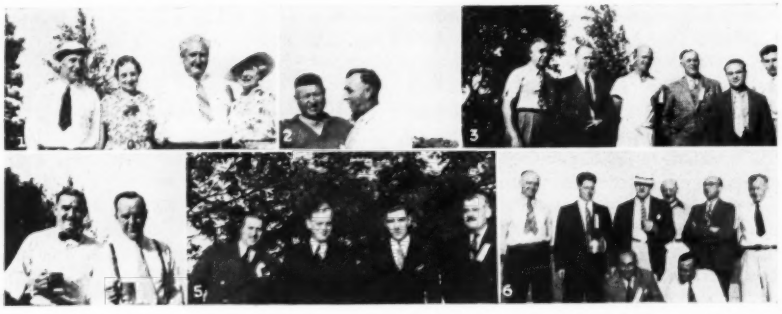
"X" PIPEJOIN

Guaranteed, leakproof pipe joint compound for cold and hot water lines. Expands under heat—an ideal filler and lubricant. Prevents corrosion, absolutely non-poisonous.

"X" PIPECUT OIL

The finest cutting oil obtainable for steel, iron, galvanized and brass pipe. Flows well over the threads. Ideal for cooling dies, will not ball up or leave dry spots. Your wholesaler has "X" Products—If not write

"X" LABORATORIES, INC., 25 WEST 45th ST., NEW YORK



Among those attending the recent outing of the Master Plumbers Assn. of Nassau County, N. Y. 1. Mr. and Mrs. George L. Bird; Mr. and Mrs. R. G. Bookhout; 2. William Metcalf; E. Floersch; 3. B. Cohen, Saltzer and Weinsier Co.; Larry Redmond; Lionel M. Kipp; M. E. Northrop, Earl K. Williams Co.; Joseph Marin and Lou Miller, both of New York Plumbers Specialty Co.; 4. Larry Dietrich, Columbia Radiator Co.; Charles Conlan, Standard Sanitary Mfg. Co.; 5. William Mann, Paragon Oil Burner Corp.; Conrad Morgen and Paul Geib, both of Equitable Supply Co.; L. R. Wilcox, Paragon Oil Burner Corp.; 6. (front) A. Malmstedt; J. Langdon, Baldwin; (rear) S. H. Irish, J. Langdon, Lynnbrook; W. J. Hazard, Pierce Butler Radiator Co.; W. H. Doscher; Al Beald, Saltzer and Weinsier Co.; W. Langdon

C. H. Leibfried	99	18	81
C. D. Waters	103	21	82
W. F. Kennedy	114	32	82
Edward Baumann	106	23	83
H. Townsend	101	16	85
Geo. Sheehan	117	31	86
J. G. Gross	127	38	89
Don O'Neil	106	12	94
I. A. Pfeil	115	20	95
J. J. Condon	132	20	112

Specifications

To help solve the vast problem of keeping 1,000,000 homes on which it holds mortgages in good repair the Home Owners' Loan Corp. has made public a revised list of master specifications of construction which may offer a pattern for private industry to follow.

Because of the necessity of adapting the master specifications to all the varying conditions met in reconditioning HOLC properties, they are applicable for general use. Instead of laying down highly specialized definitions for a limited class of projects, they formulate general rules that should be a basis for judgment on all types of projects. One of the purposes of the list is to give to builders of small homes some of the technical proficiency granted to builders of more ample means.

Power Show

Equipment to be exhibited at the Chicago Exposition of Power and Mechanical Engineering at the International Amphitheatre, Oct. 4 to 9 will include stokers, boiler feeders, temperature regulators, condenser tubes, flexible metal hose and tubing.

Boiler plant accessories will include a complete line of thermostatic steam traps, for use in industry and for heating public buildings. The section at the show devoted to piping, valves, fittings and pumps will feature improved design and increased service based on the effective application of specific metals and alloys.

Bureau

- *Price propaganda to be discussed at annual meeting of Plumbing and Heating Industries Bureau, October 27*

One of the important subjects to come before the annual meeting of the Plumbing and Heating Industries Bureau, to be held at the Morrison Hotel, Chicago on October 27, will be the widening of the campaign to get before the public the fact that plumbing and heating prices are below the average for the last twelve years.

All manufacturers, wholesalers and contractors in the plumbing and heating industries are invited to attend the meeting, according to Pres. John J. Calnan.

Price Propaganda

Discussing the price propaganda feature of the meeting Mr. Calnan said: "This is a matter which requires the concerted effort of all branches of our industry. While the bureau, with the cooperation of wholesalers and manufacturers, has obtained a substantial volume of favorable newspaper publicity on the price situation, the importance of the subject warrants intensive promotional effort. We must see to it that the public generally is made aware of the fact that this is an opportune time to build or modernize, and that plumbing and heating—from every point of view—offer values that have never been equaled in the history of these industries."

Another important subject to come before the meeting is the cooperation between the plumbing and heating industry and the various organizations endeavoring to improve the quality of residential construction. It is to the interest of everyone in our industry, said President Calnan, that the fullest cooperation be given to the many groups who have indicated such a definite desire to foster higher standards.

Reports

Reports on the year's work will be made by officers of the bureau who consist, besides Mr. Calnan, of William M. Byrd, vice president of the Alabama Pipe Co., vice president; Charles K. Foster, vice president of American Radiator Company, treasurer, and Norman J. Radder, secretary-manager.

A report of the finance committee will be presented by A. C. Brown, president of the Chicago Faucet Co., chairman. Members of the committee include E. P. Corey, Youngstown Sheet and Tube Co.; George H. Dickerson, vice president, Heating, Piping and Air Conditioning Contractors National Assn.; Charles K. Foster; Walter J. Kohler, president, Kohler Co.; P. R. Mork, vice president, Crane Co.; Harry C. Yelton, past president, Central Supply Assn.

Chicago Golf

The Medinah Country Club was the site to which Chicago master plumbers and supply men journeyed for their monthly golf tournament on September 16.

Some very excellent scores were made in the competition for the association cup and season prizes. The first prize for low net in class "A" went to Tom Horan with a score of 80-10-70. Geo. Divileskis was second with a low net of 80-11-69, and third prize was annexed by Larry Walsh with a net score of 86-20-66.

In class "B" the low net and first prize was won by John Bushnell with a score of 69 which reverted to par 72. D. O. Anderson also shot below par with a 70 and was awarded second prize. The third prize was won by Henry P. Reger with a 74.

The prize winners were announced at the dinner in the evening by the chairman of the golf committee, George Matthews, and distributed by Sec. Peter M. Munn. Charles Gawne, president of the Illinois state association, spoke briefly.

The flight winners were T. Lavaty, H. Burr, C. E. Barrows, Carl Nilson, F. Ruhnke, Geo. Holt, C. Waterton, R. Harris, H. Breetzke, E. Hull, J. Hill, J. Stanfield, R. Lindblad, Ed. Carroll, L. Katz, H. M. Doyle, W. J. Sievert and Dean Schoop.

The individual scores made were as follows:

D. O. Anderson	100	30	70
T. Arenberg	135	40	95
Warren Barr	113	28	85
C. E. Barrows	100	20	80
Harry Breetzke	93	19	74
John Blair	120	34	86
W. Breyer	131	27	104
P. J. Brown	109	23	86
Walter Brown	119	32	87
H. Burr	81	8	73
John Bushnell	97	28	69
Ed. Carroll	95	19	76
A. Cigrand	110	24	86
Geo. Divileskis	80	11	69
H. M. Doyle	83	8	71
Chas. Dreier	109	27	82
L. Eaton	110	30	80
G. F. Ebbert	100	16	84
A. Eckdahl	104	22	82
F. Fabbri	91	19	72
J. Fettes	114	24	90
A. Flodberg	103	26	77
C. Fortmiller	119	31	88
L. Gloser	98	10	88
F. Hackett	109	19	90
R. Harris	118	34	84
Bill Hildeman	110	25	85
Geo. Hill	125	40	85
Jack Hill	110	35	75
G. Holm	87	20	67
Geo. Holt	91	17	74
T. R. Horan	80	10	70
E. Hull	92	17	75
R. L. Hundley	107	30	77
Chas. Jones	102	22	80
L. Katz	103	29	74
T. Lavaty	99	18	81
R. Lindblad	93	21	72
Harry Litzeau	116	30	86
John Madden	96	21	75
Geo. Mahoney	101	25	76
E. Mortimer	100	23	77
Peter Munn	105	27	78
A. J. Nikodema	82	10	72
A. R. Nilson	99	22	77
Carl Nilson	92	14	78
G. A. Nilson	102	20	82
Norman Peterson	90	8	82
H. P. Reger	101	27	74
E. W. Rietz	102	18	84
H. Robertson	112	19	93
F. Ruhnke	94	18	76
Elmer Sanger	118	15	103
Dean Schoop	91	10	81
Mr. Schuloff	89	20	69
P. Sieben	104	24	80
W. J. Sievert	101	20	81
J. Stanfield	91	16	75
Mr. Swift	119	30	89
Ray Thompson	115	30	85
E. Wagner	126	27	99
Larry Walsh	86	20	66
C. Waterton	87	13	74
E. D. Weis	113	31	82
P. West	88	14	74
M. H. Westerberg	96	15	81
H. Wolters	115	28	87

Dayton Doings

During the Summer months the board of directors of the Dayton, Ohio Master Plumbers Assn., feeling that interest and activity should be maintained, continued to hold its semi-monthly meetings. Improvements in conditions made were maintained or further advanced and other activities were started.

Starting with its Sept. 13 meeting, the association has entered upon a drive to finish its first year's program. Membership was increased from 42 to 57 during the year with the loss of only one member. A drive will be made soon to select those remaining outside the association who can conform to the rules and code of ethics.

Taken at the Boston Assn. of Heating Piping and Air Conditioning Contractors outing at Belmont, Mass. 1. J. P. Fitzgerald; Jim Williams, P. A. Dolan Co.; W. D. Buchanan, B. F. Sturtevant Co., Inc.; 2. C. V. Porter, Springfield, Mass.; John Miller, vice president, B. F. Sturtevant Co., Inc.; H. M. Fisher; 3. Dane Boyden, president, American Society of Heating and Ventilating Engineers; Earl Florence, chairman of outing committee; George H. Harrison; Frank Tuttle, Warren Webster & Co., Boston; 4. Otto Hansen; Carl Shaw, Lumsden Van Stone Co.

Illinois Licenses

Under an amendment to the Illinois Plumbing License Law, the deadline date for renewal of licenses has been postponed to October 1. The amendment states that any applicant for a certificate of license of master plumber or journeyman who shall, before October 1, present to the Department of Registration and Education satisfactory evidence in writing that he has a master plumber's or journeyman's license, shall have issued him a certificate of license with no additional evidence, application, examination or filing fee. Masters or journeymen must have had their state license paid up to July 1, 1935.

Housing Conference

A conference to promulgate a far-flung program of low rent housing construction and slum clearance throughout the country under the Housing Authority was called in Washington in September by the Secretary of Interior and attended by civic officials and leaders, representatives of Federal departments, officials of the Housing Division of PWA, state housing officials, representatives of real estate interests and housing groups and others interested in better homes for persons of small incomes.

The following points were considered at the conference: (1) steps to be taken to acquaint the public with the extensive need for further housing and slum clearance efforts; (2) action to be taken to stimulate creation of additional housing authorities under existing state acts and the enactment of housing legislation in states lacking such provisions; (3) the type of housing which can be regarded as sub-standard in each locality; the size, income and number of families living in such sub-standard housing; and the current rents and vacancies in housing available at low rents.

Monmouth Outing

Approximately 150 guests attended the annual outing of the Monmouth and Ocean Counties Plumbing and Heating Assn. of New Jersey, held recently at Conners Hotel, Water Witch, Highlands, N. J.

A ball game between salesmen and master plumbers featured the program. A short dinner was enjoyed. The outing committee was composed of Harry J. O'Brien, chairman, Roger Strevell, P. MacInnis, H. T. Hall and Frank Gibson.

Utah Outing

The annual outing of the Utah plumbing and heating industry was held recently at the Lagoon resort, with approximately 300 masters, journeymen, supply house representatives, their families and friends present.

The outing was sponsored by the Salt Lake City Assn. of Licensed Plumbers with A. H. Higham as chairman of arrangements, Edmund P. Evans in charge of refreshments, and Mr. Evans and Charles J. Dietz assisting with the reception.

The program included a softball game, races and other entertainment. Roy Burroughs, Harris-Dudley Co., and Ray Powers, Crane Co., won the horseshoe pitching contest.

Plumbing Golf

The final tournament of the Chicago Plumbing Trades Golf Assn. will be staged at Rolling Green Country Club, Arlington Heights, Ill., on October 7. In addition to the presidents' trophy, donated by Thomas F. Hanley, Jr., president of Plumbing Contractors Assn. of Chicago, there will be a number of other season trophies in the form of silver cups donated by Henry P. Reger, Henry O'Callaghan, W. F. Hildeman, Fames W. Fettes and W. J. Woolley. Members will also compete for the association cup.

Annual Outing

The annual outing of the Master Plumbers Assn. of Nassau County, N. Y., was held recently at Narragansett Inn, Lindenhurst, Long Island. Two soft ball games, a shore dinner and dancing featured the outing.

Pres. E. Floersch, Vice Pres. Lionel M. Kipp and Past Pres. William Metcalf greeted the guests. Mrs. William Metcalf, Mrs. William Bloeth, Mrs. L. C. Kipp, Mrs. William Jacobi and Mrs. James C. Metcalf arranged the ladies' part of the program.

Among the guests were George L. Bird, past national secretary; John F. Rogers, Queens County Assn., and Larry Redmond, secretary of Queens County association.

Contractor Group

A meeting of the executive board of the newly organized Sub-Contractor's Assn. of Dayton, Ohio, was held in the headquarters of the master plumbers' association on Sept. 8 to perfect the organization and formulate a program for presentation at a general meeting.

As members of one of the most aggresive and effective business associations in Dayton, members of the Master Plumbers Assn. were drawn upon liberally to serve upon the committees. Charles M. Ganger was appointed to the architectural committee; Harlye Young to the general contractor contact committee; Henry Blank, past state president of the Ohio Assn. and a member of the national conference committee, to the source of supply committee; Joe Keim, past president, to the committee appointed to develop more business for the membership among building and loan companies and other financial institutions and government agencies; Dick Clemens to the educational committee; Charles M. Ganger to the membership committee; J. E. Withers, business manager, and H. C. Shommer to the industrial plant committee. George Krebs and W. L. Stewart have been charged with providing entertainment.

The organization already has over 150 members and expects to reach 250 within a short time.

Chicago Bowlers

The North and Northwest Side Master Plumbers Pleasure Club of Chicago inaugurated the Winter bowling season recently. The teams bowl every Monday afternoon at 4041 Fullerton Ave. Al Grosch is president of the club and Paul Hamer is chairman of the entertainment committee.

Newark Outing

The annual outing of the Master Plumbers Assn. of Newark, N. J., made a family affair this year, was held September 1 at The Pines, Metuchen, N. J.

Games played after luncheon consisted of potato races, peanut races, quoits, horseshoes and baseball. After a steak and chicken dinner in the evening a game called "Egbert," which is a version of "bingo," was played.

Among the visitors were George L. Bird, past national secretary; Edward L. Geyer, state president; William W. Harms, state secretary; George Brenner, state first vice president; Lester Wake, state field secretary; Louis Meier, president of New Jersey State Heating Assn., and representatives of the manufacturers and wholesalers.

Pres. Albert Ruehl and Joseph C. Turbett, chairman, arranged the outing. Ira H. Morris handled the ticket department. Mrs. Albert Ruehl, Mrs. Max Cohen and Mrs. Joseph C. Turbett were in charge of ladies' and children's entertainment.

Final Meet

The Delaware Valley Trade Golf Assn. held its last regularly scheduled meet of the season on September 17, at the Concord Country Club, Concordville, Pa., with the Speakman Co., Wilmington, Del., hosts for the day.

More than 75 members and guests turned out. The dinner and business meeting in the evening were presided over by Pres. Chas. P. Hackett. Mr. Hackett, on behalf of the association, thanked Willard A. Speakman, Jr., president; J. Fletcher Wright, sales manager; A. V. Gemmill, secretary and treasurer; James A. Frazer, and C. C. Gerow, Jr., all of the Speakman Co., who were in charge of the arrangements for the day.

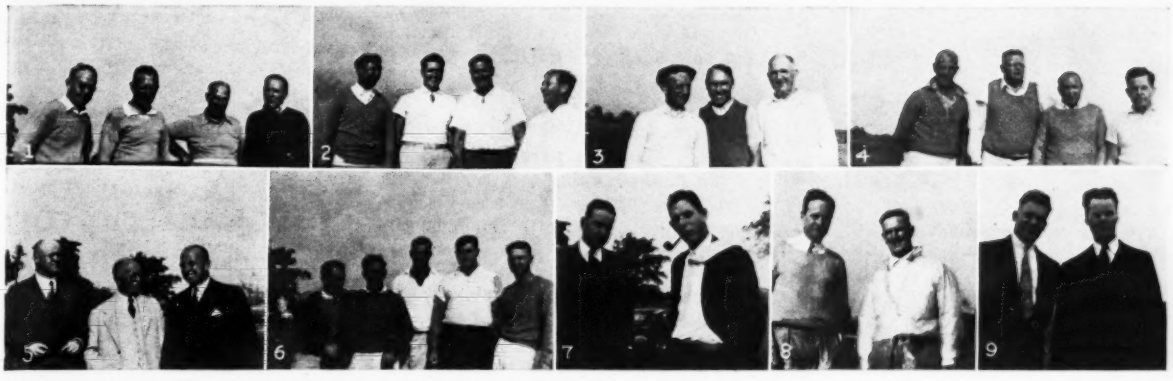
Brief talks were given by the foregoing as well as by Wm. C. Hanson, president of E. G. Schafer Co., Washington, D. C.; Herbert F. Weldin, president of the Delaware Master Plumbers Assn. and member of the N. A. M. P. conference committee; C. C. Lowry, vice president of Hajoca Corp., Philadelphia; A. A. Tomlinson, president of Tomlinson Co., Philadelphia, and Herman J. Kleinman, secretary of the Delaware Valley Trade Golf Assn.

Russell D. Knight, Philadelphia, suggested that the association hold an additional meet this year to be known as the A. A. Tomlinson Memorial Meet to celebrate Mr. Tomlinson's forty-fifth anniversary in the jobbing business. The association acted upon this suggestion and it was decided to hold this meet on October 15 at the Manufacturers' Country Club, Orland, Pa., just outside of Philadelphia, with Mr. Knight, Mr. George Pierce and Mr. A. W. Hale as hosts for the day.

After the awarding of prizes, the meeting adjourned with everybody agreeing that it was one of the finest meetings ever held by this association.

Morning round prize winners were A. Scharnagle, R. Goff and Dan Quinn.

Taken at recent outing of Master Plumbers Assn. of Newark, N. J. 1. (front) Mike Baudermann; John C. Ellermann; Albert H. Bornmann; Lester Wake, state field secretary; (rear) Larry Kantor; Max Cohen; Edward Geyer, state president; 2. (front) Henry Baumgardner; Joseph Turbett, chairman of outing committee; Walter A. Grubb, past state president; George Glickfeld; James Wallwork; Louis Meier, president, New Jersey Heating Assn.; (rear) Theo. Farinella, George Brenner, first vice president of state association; Albert Ruehl, state second vice president



Taken at recent tournament of Delaware Valley Trade Golf Assn. 1. Tom Powers; W. C. Hanson, E. G. Schafer Co.; Harry Elliott; Willard Speakman, Jr., president, Speakman Co.; 2. E. L. MacWhorter, Byers Pipe Co.; D. J. Quinn, Standard Sanitary Mfg. Co.; L. C. Higgins, Grinnell Co.; A. Seither, C. J. Rainer Co.; 3. G. T. Sauter; James Fraser, Speakman Co.; Thomas Stein, Johns-Manville Corp.; 4. Harry Faltenbacher; A. C. Dambly; H. H. Erickson and M. F. Blankin, both of Haynes Selling Co.; 5. A. A. Tomlinson, president, Tomlinson Co.; H. J. Kleinman, secretary of Delaware Valley Trade Golf Assn.; Ray Groff, Malleable Iron Fittings Co.; 6. John Radice, Trenton Potteries Co., captain of Delaware Valley Trade Golf Assn.; George Duncan, J. D. Johnson Co.; Walter Webster; Daniel Scharnagle; Andrew Scharnagle, J. D. Johnson Co.; 7. G. Gassaway, secretary, Wilmington Chamber of Commerce; Karl Bamberger; 8. Charles Wall, manufacturers' agent; Robert O. Bowen, chief plumbing inspector, Philadelphia, Pa.; 10. Curtis Sinclear, Speakman Co.; C. Holloway, manufacturers' representative

Winners in the afternoon round were J. R. Nurny, Frank Hackett, Tom Powers, A. A. Ahlff, J. Squires, N. Blankin, E. L. McWhorter, Al Seither, Charles Wall, H. J. Carr, W. B. Hanson, Ellis McPhail, R. Pancoast, P. B. Holmes, E. E. Sutter, S. J. Radice, W. Ash, C. P. Hackett, H. Peace, George Duncan, C. L. Weber, George Pearce, R. Knight and Robert Savill.

Scores for the afternoon round were as follows:

Chas. P. Hackett	115	24	91
Chris L. Weber	109	14	95
H. Escott, guest	92	12	80
W. N. Ash	101	10	91
J. Ellis McPhail	98	12	86
J. Fletcher Wright	99	14	85
Harold C. Peace	104	12	92
George Sauter, guest	95	15	80
James Fraser	93	12	81
T. B. Stein, guest	108	30	78
Chas. G. Wall	96	14	82
Robert Bowen, guest	93	14	79
John Radice	110	20	90
George R. Duncan	114	20	94
Andy Scharnagle	87	10	77
Dan'l Scharnagle, guest	123	30	93
Walter Webster, guest	99	15	84
E. E. Sutter	109	21	88
Don Hutchinson, guest	97	13	84
Paul B. Holmes	117	30	87
Thos. F. Burke	108	24	84
M. B. Squires	94	16	78
Richard Pancoast	112	26	86
H. J. Carr	99	16	83
Merrill F. Blankin	89	10	79
H. Erickson, guest	106	27	79
A. E. Dambly	97	20	77
H. Faltenbacher, guest	91	14	77
F. H. Elliott, guest	90	10	80
Thomas H. Powers	91	14	77
Wm. C. Hanson	105	20	85
A. A. Ahlff	87	10	77
J. R. Nurney	95	24	71
Thomas Crawford, guest	89	14	75
Frank C. Hackett	96	20	76
George C. Pearce	120	24	96
Russell D. Knight	118	18	100
J. W. Sinclear, guest	86	15	71
H. E. Burkhardt, guest	104	18	86
Charles Muend, guest	119	30	89
J. A. Hickman, guest	114	30	84
Larry Higgins, guest	120	30	90
E. L. MacWhorter	98	17	81
Al. Seither	90	8	82
Danl. J. Quinn	127	30	97

Morning round scores were as follows:

George R. Duncan	59	10	49
Walter Webster	55	7	48
Dan'l Scharnagle	57	15	42
Andrew Scharnagle	45	5	40
Charles G. Wall	50	7	43
Robert Bowen	51	7	44
Elwood Costa	71	15	56
Robert G. Savill	65	11	54
Russell D. Knight	59	9	50
George C. Pearce	67	12	55
Larry Higgins	54	15	39
E. L. MacWhorter	53	8	45
Al. Seither	47	4	43
Daniel J. Quinn	66	15	51
Wm. C. Hanson	55	10	45
Jack Sutter	56	15	41
Don Hutchinson	43	6	37
Thos. H. Powers	58	7	51
Raymond Groff	46	6	40
H. Escott	52	6	46
C. B. Lord	74	15	59
W. N. Ash	54	5	49

Group Meetings

The Master Plumbers Assn. of Dayton, Ohio is promoting a monthly conference of presidents and secretaries of the various local associations in the trade area by means of which these representatives will get together to exchange ideas, information and cooperation. It is recognized that some conditions are common to all in the area covered while conditions obtaining in some sections are unknown in others.

The first meeting is being held in Dayton and, if the response is satisfactory, later meetings will be held in other cities. It is probable that national and state officers will be invited to attend these meetings to advise the locals as to how they can best help the work of the national and state associations.

Requirements

Extensive changes in the American standard safety requirements for the installation of air conditioning and ventilating systems have resulted in a revision being submitted on the standard to the American Standards Assn. for approval. The National Fire Protection Assn., which developed the standards as a minimum requirement, submitted the revisions.

Two standards have been proposed to take the place of the original standard. One is entitled: "Regulations for the Installation of Air Conditioning, Warm Air Heating, Air Cooling and Ventilating Systems." The other has as its title: "Regulations for the Installation of Blower and Exhaust Systems for Dust, Stock and Vapor Removal."

In proposing a separate standard, the National Fire Protection Assn. said: "The rapid development of air conditioning has made it desirable in our opinion to have a separate standard to cover this subject rather than including it in the general standard as previously. While the fundamental principles are unchanged from the 1933 standard, much of the material pertaining to air conditioning installations is new. The standard on the installation of blower and exhaust systems includes relatively few changes."

The proposed new standards are revisions of the American standard which was approved in 1935.

New Association

The Upper Peninsula Plumbers Assn. was formed at a recent meeting in Marquette, Mich. Sixty attended the meeting. Samuel Robinson was elected

president and Hilmer Levine secretary and treasurer.

Coast Inspectors

The Pacific Coast Plumbing Inspectors Assn. is to hold the eighth annual convention of the association in San Diego, Calif., October 14-16. Headquarters for the convention will be in the Hotel San Diego. This year's convention will be marked by several exhibits by manufacturers, according to the announcement.

Aid Ad Fight

The San Antonio Master Plumbers and Heating Contractors Assn., Inc., has joined with other organizations in San Antonio, Tex., in favor of an advertising program for the city to be supported by an ad valorem tax.

With a unanimous vote, the association went on record as being in favor of such a movement at its last meeting, it was announced by F. Wahrmund, secretary of the association and newly appointed director of the National Assn. of Master Plumbers.

At the meeting before the vote was taken, Arthur E. Biard, advocate of a tax for advertising, talked to the contractor-dealers on the subject of "Cooperation and Organization."

Murray Honored

Upon the occasion of his eighty-ninth birthday, Alexander W. Murray of Twin Falls, Idaho, only living charter member of the National Assn. of Master Plumbers, was presented with an especially inscribed cane, the gift of the southern Idaho master plumbers' group. The presentation was made at a dinner meeting of the southern Idaho group, held at Buhl recently, by J. A. Campell, secretary-treasurer of the Idaho association, and accepted by Mr. Murray in a speech in which he stressed the importance of plumbing and sanitation, and praised educational work being done by N.A.M.P.

Mr. Murray was the first secretary of the Chicago association when it was organized in 1883, and he is an honorary member.

Obituaries

L. H. Salter

Llewellyn H. Salter, 59, sanitary engineer of Jefferson County, Ala., died September 17 after a long illness. He was well known as the designer and builder of the Shades Valley Sewage Disposal Plant, Birmingham. His widow and one daughter survive.

R. B. Hayward

Ralph Baker Hayward, 63, president of the R. B. Hayward Co., heating and ventilating engineers, Chicago, Ill., died recently while on a visit to his old home in Lockport, N. Y. For the last twenty years he conducted his business in Chicago and made his home in LaGrange, Ill., of which he was a former mayor. He is survived by his widow and two daughters.

A. E. Knoeppel

Alfred W. Knoeppel, 50, vice president and a member of the board of John Simmons & Co., Long Island City, N. Y., died Sept. 8. Surviving are his mother and two brothers.

Maurice Sowell

Maurice Sowell, since 1922 associated with N. O. Nelson Co., and for the past seven years manager of the Houston, Texas branch, died Sept. 1. He is survived by his widow, one sister and two brothers.

Emmet Blaney

Emmet Blaney, 35, Peshtigo, Wis., a salesman for American Radiator Co., died suddenly at Escanaba, Michigan, September 21.

W. E. Pitt

William E. Pitt, 54, for fifteen years a plumbing and heating contractor in Cheyenne, Wyo., died recently after several days' illness. He is survived by his widow, one daughter, two sons, his mother, two sisters and one grandson.

Herman Kahn

Herman Kahn, head of the H. Kahn Mfg. Co., Philadelphia, Pa., died in that city recently. His widow will carry on the business.

W. H. McCormick

William H. McCormick, 53, supervisor of Hajoca Corp. Philadelphia branches, died Sept. 12 after a short illness. A veteran in the wholesale plumbing and heating supply business, he had served successively with Ford & Kendig Co., American Tin and Terne Plate Co., Bridgman Co. and Hajoca Corp. He is survived by one daughter.

Norman MacArthur

Norman MacArthur, in the plumbing business in Winnetka, Ill., for several years, died September 10. He is survived by his widow, his mother and father, three sisters and one brother.

New Contractors, Business Changes

Seattle, Wash.—Martin Byrne, contractor-dealer, is erecting an addition to his plant.

Fargo, N. D.—The Fargo Plumbing and Heating Co., has moved to 512 3rd St. N.

Thief River Falls, Minn.—Tom Peck, former plumbing and heating contractor of Duluth, Minn., has opened business under the name of Peck Plumbing and Heating Co.

Eugene, Ore.—The Eugene Plumbing and Heating Co. has opened business under the management of Frank Dalton.

Milwaukee, Wis.—Max C. Wiedoff has established a plumbing shop at 2201 W. Center St.

Glendale, Calif.—The C. & C. Plumbing Co. has been formed by Clarence E. Glaze and Clarence G. Byson.

Kennewick, Wash.—L. H. Raymond, who is engaged in the plumbing and heating business, is beginning the erection of a new business building.

Convention Dates

October 9-11.—WHOLESALERS.—Sixteenth convention of Plumbing and Heating Wholesalers of N. E., Inc., to be held at Poland Spring, Me., with headquarters at Poland Spring House.

October 11-12.—PORCELAIN.—Seventh annual meeting of the Porcelain Enamel Institute, to be held in Chicago.

October 27-28.—SUPPLY.—Convention of Central Supply Assn., to be held in Chicago with headquarters at Morrison Hotel.

November 13-15.—DISTRIBUTORS.—Meeting of Southwestern Wholesale Distributors Assn. to be held in Guaymas, Mexico, with headquarters in Hotel Playa de Cortes.

January 24-28.—A.S.H.V.E.—Exposition of the American Society of Heating and Ventilating Engineers, to be held at New York City, with headquarters at Grand Central Palace.

January 25-26.—HEATING AND AIR CONDITIONING.—Winter convention of the National Warm Air Heating and Air Conditioning Assn., to be held in New York City with headquarters at the Roosevelt Hotel.

June 6-9.—N.A.M.P.—Fifty-sixth annual convention of the National Assn. of Master Plumbers, to be held in Cleveland, Ohio, with headquarters in the Hotel Cleveland.

ARE COMPETITORS "Running Rings" AROUND YOU?

Then do as they do. Use fittings that don't have to be fussed with . . . fittings that make things click . . . and your problem is licked. Square "GEES" are that kind. They make jobs come out on schedule . . . increase profit by cutting labor costs . . . a little here, a little there. Square "GEES" "come tight" in a hurry. Clean cut threads speed up the work . . . make installation smoother . . . neater . . . easier. Order Square "GEE" fittings by name from your wholesaler. And for profit's sake, keep it up!

It's Free! – to plumbing and heating contractors . . . to their journeymen. The Square "GEE" Plumbalog! . . . the pocket-size mechanical handbook that cuts out guess-work . . . gives ready reference answers . . . quick solutions . . . to scores of installation and estimating problems. Write for your Plumbalog . . . TODAY. Get a copy for your mechanics.

THE SQUARE "GEE" LINE INCLUDES: STANDARD AND EXTRA HEAVY MALLEABLE FITTINGS • STANDARD AND GROUND JOINT UNIONS • RAIL FITTINGS • STANDARD CAST IRON STEAM AND DRAINAGE FITTINGS • PATENTED FITTINGS • STANDARD AND EXTRA HEAVY BRASS FITTINGS • BRASS UNIONS • STEEL AND BRASS NIPPLES • HANGERS • FLOOR AND CEILING PLATES • RAPIDSEAL COPPER TUBE SOLDER TYPE FITTINGS

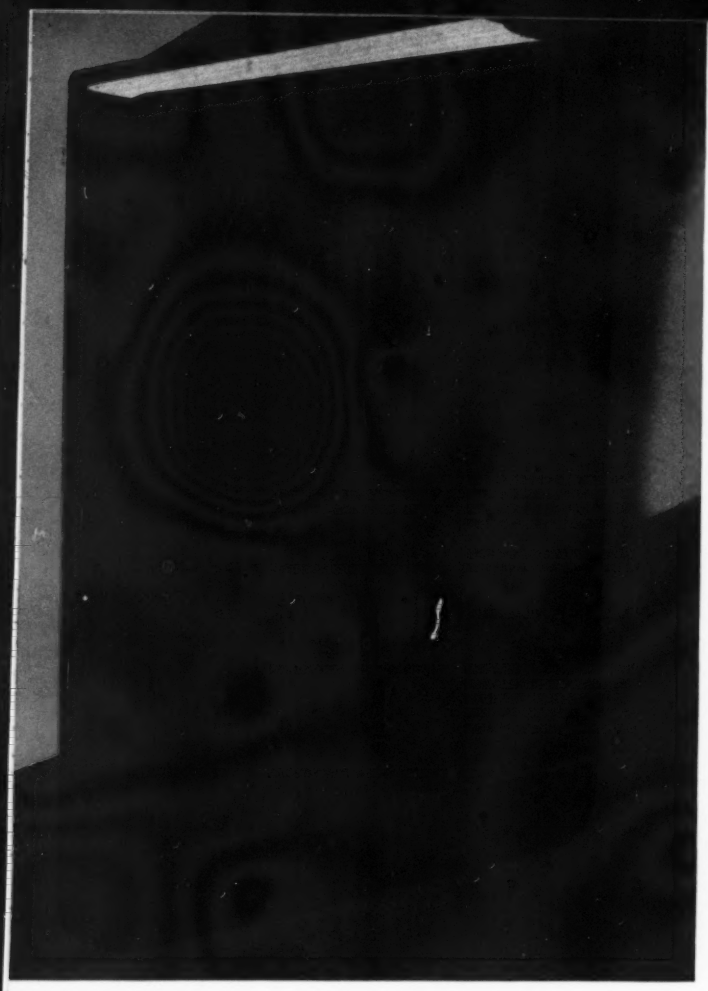
THE GRABLER MANUFACTURING COMPANY
6565 Broadway • • Cleveland, Ohio
Warehouses: NEW YORK • CHICAGO • PHILADELPHIA
LOS ANGELES • SAN FRANCISCO • DENVER • DALLAS

SQUARE Pipe

"GEE" Fittings

MALLEABLE, CAST IRON

DRAINAGE, BRASS, COPPER



TO THE Point!

TABLE *of* CONTENTS

● PART I

THE DRAINAGE SYSTEM. Chapter I.—Soil, Waste, Vent and Drainage Systems. Chapter II.—Design and Sizing of Soil, Waste, Vent and Drainage Systems. Chapter III.—Sewage Disposal.

● PART II

HOT AND COLD WATER SUPPLY. Chapter IV.—Cold Water Supply. Chapter V.—Cold Water Pipe Sizing. Chapter VI.—Pneumatic Water Systems and Cylindrical Tanks. Chapter VII.—Domestic Hot Water Supply Systems. Chapter VIII.—Range Boiler Connections. Chapter IX.—Solar Water Heaters.

● PART III

MISCELLANEOUS SERVICES. Chapter X.—Fire Protection and Automatic Sprinklers. Chapter XI.—Lawn Sprinkling Systems. Chapter XII.—Shower Baths, Swimming Pools and High Buildings. Chapter XIII.—Drinking Water Systems. Chapter XIV.—Gas Piping and Gas Consumption. Chapter XV.—Vacuum Cleaning and Compressed Air. Chapter XVI.—Water Turbines.

● PART IV

PLUMBING FIXTURES AND MATERIALS. Chapter XVII.—Water Closets and Urinals. Chapter XVIII.—Other Types of Plumbing Fixtures. Chapter XIX.—Insulation. Chapter XX.—Pipe, Fittings and Materials. Chapter XXI.—Mathematics and Mathematical Tables.

IN THIS BOOK!

PRACTICAL PLUMBING contains 365 pages—it is divided into 4 parts which are subdivided into 21 chapters. It is well illustrated with 292 drawings and has 61 special tables . . . a large number of standard tables . . . complete set of plumbing symbols . . . all completely indexed . . . size 5¼x8¼ . . . bound in semi-flexible cloth cover . . . a worthwhile addition to any business library.

AVOID COSTLY MISTAKES

PRACTICALLY, thoroughly, authoritatively, this book covers every phase of modern plumbing. It's a book which will enable you to eliminate guesswork and the element of chance from your plumbing installations. It permits you to KNOW THE FACTS before you undertake any kind of plumbing job. With its aid you avoid costly, dangerous mistakes.

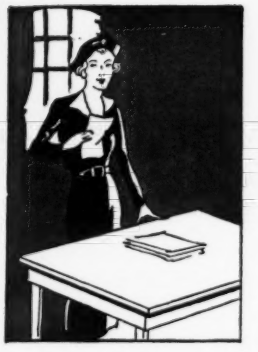
PRACTICAL PLUMBING takes you directly TO THE POINT on every subject it covers. Only when necessary to demonstrate the origin of a common practice is theory resorted to. You'll find this book as interesting to read as it is convenient to refer to. Interspersed in its 365 pages of meaty, authentically informative material you'll find a large number of diagrams, charts, tables and illustrations to simplify the use of this book. The alphabetical, ready reference index in the back of the book makes for even greater convenience when some particular plumbing problem is under consideration.

Once you have your copy of PRACTICAL PLUMBING you'll consider it an important business asset . . . a book you can scarcely afford to be without. At $3.50, you'll agree it's a wise investment and an attractive addition to your trade library. Better order yours today.

ONLY $3.50 POSTPAID

Practical PLUMBING

COVERS EVERY PHASE OF PLUMBING



Women

Conducted by . . . Dorothy Edwards

Resume Auxiliary Activities

• *Business programs and social events claim attention of members as Summer ends—Full calendars reported*

With the coming of cooler weather, the various units of the women's auxiliary have again resumed regular meetings, which were discontinued during the Summer in favor of picnics and outings. Membership campaigns, benevolent activities, promotion of sanitation and social events fill the programs of the auxiliaries for the coming months.

Mrs. Geo. Reeke

Mrs. George Reeke, 67, wife of a prominent Green Bay, Wis., master plumber, passed away at her home on September 6. She had taken an active part in civic and charitable work for many years in Green Bay, but for the past three years had been an invalid and confined to her home. In addition to her husband, she is survived by a daughter, three sons, two grandchildren, two sisters and two brothers.

26th Year Begun

The Women's Auxiliary of the Kansas City, Mo., Master Plumbers' Assn. has entered upon its 26th year of active service. Its activities include the promotion of sanitation, an interest in the plumbing class at Lathrop Trade School, benevolences and social events.

This unit of the auxiliary has been connected with the Needle Work Guild for eleven years. In this time the members have made and given to the Kansas City, Mo., branch of the Guild fifteen thousand garments. Donations have also been made to the Visiting Nurses Assn. and Mercy Hospital.

On October 14 an all-day meeting will be spent in sewing at the home of Mrs. Edwin D. Hornbrook. A card party and other social affairs are planned.

Loan Fund Increases

Members of the Cincinnati Women's Auxilary held their regular business meeting at Coney Island on Tuesday August 17. Preceding the business session, they partook of a delightful luncheon at the new modernistic club house situated in this pretty park. All enjoyed the ride on the steamer "Island Queen," admiring the beautiful rolling hills of Kentucky and Ohio along the banks of the Ohio River.

A resolution was passed at this meeting that each member contribute toward their student memorial fund. All responded immediately, and in this way a generous amount was added to the fund.

Taken at recent family outing of Master Plumbers Assn. of Newark, N. J. 1. the ladies' soft ball teams; 2. group of those present

Recovery Reported

The many friends of Mrs. E. D. Hornbrook of Kansas City, Mo., "mother" of the women's auxilary, will be glad to learn that she is recovering from her recent illness. She had been suffering from heat exhaustion for some time.

Gain New Members

A new member was admitted to the Women's Auxilary of the Master Plumbers' Assn. of Connecticut at its September meeting, which was held at the Mohican Hotel, New London, September 16. This makes a total of fourteen new members which have been added since the convention in May.

Mrs. A. Bergeron, president, presided at the business session, at which thirteen members were present. It was reported that Mrs. J. A. Landgren of Berlin, past president, has been appointed a national director.

After the business meeting, bingo was played. The ladies then joined the men and all went to the Sea Shell at Madison for dinner.

Mrs. Claffy

Mrs. Annie Claffy, mother of Thomas Claffy, Chief Plumbing Inspector of the Bureau of Sanitary Inspection, Chicago, passed away August 27 at the age of 93. She is survived by four sons.

Resume Meetings

The first gathering of the San Francisco auxiliary following the summer recess, took place September 2 at Chalet-at-the-Beach, overlooking the Pacific. The hostess of the day, Mrs. E. A. Balling, arranged an appropriate decoration for the center of the large table—a miniature beach scene, complete with kewpie figures playing in the sand. Favors were sea-shell ash trays. President Mrs. Lena Sand announced plans were well under way for the forthcoming birthday party.

Recognition

Over Radio . . . In Newspapers . . . Thru Magazines . . .

To two obvious elements making for the success of our industry—dependable and smartly styled products, honest and resourceful merchandising—a third element called recognition or publicity must be added to explain completely our industry's continued growth. The volume of printed copy on the essential services of our industry appearing today and every day in the newspapers of the country is impossible to compute, so vast is it. Magazines containing articles describing features of our merchandise reach millions of people also. Such favorable notice must have an effect favorable to our industry as a whole and, therefore, to each contractor-dealer individually. Through such material is the public influenced toward our industry positively; thus is the public predisposed favorably towards the purchase of our industry's products and services.

Style in Sinks

- *Article in widely read publication discusses new styles and utilities in sinks—Boosts contractor-dealer*

An article titled "Look What's Happening to Sinks" by Norman J. Radder, secretary of the Plumbing and Heating Industries Bureau, appeared in *Better Homes and Gardens* for September. Complete with illustrations and comprehensive in treatment, this article takes its place with others of the same general type which inevitably increase business on a nation-wide scale. Praise for the legitimate contractor-dealer is given in the last two paragraphs:

"Your sink, of course, is only part of the plumbing system of your home. Unless the whole system is correctly designed and properly installed, the sink can't be expected to give you trouble-free service. Drains may clog or the supply of water be insufficient. It's for this reason that manufacturers of nationally advertised sinks sell only through reputable and established plumbing contractors who, through experience and training, are qualified to install plumbing equipment so that it will give all the service and satisfaction that the manufacturer built into it.

"So one last word on sinks. If you're confused by the many materials and trademarks on the market, and uncertain which claim to believe and which to take with a large dash of salt, consult your plumbing contractor. From years of experience he will be able to guide you in choosing the finest sink for your home."

Press Releases

- *Newspapers all over the land tell the tale of the rising sales curve our industry shows—Excerpts from a typical story*

Press stories describing the growth of an industry lead to the conviction in the minds of the public that that industry's products have value. They point public attention to an industry's products. They are path-breakers on the trail to greater sales. Here are quoted excerpts from one of the newspaper stories which record the rise of sales in our own industry. From the Columbus (Ohio) *Citizen*:

"For the first six months of 1937 sales of plumbing and heating wholesalers gained 28.9 per cent over the same period of last year . . . according to . . . DOMESTIC ENGINEERING.

"The gain in this industry is well ahead of general business gains. Shipments of plumbing items continue to show wide gains over the previous year with automatic heating equipment, water systems and plumbing brass holding the lead.

"During the first five months stoker shipments gained 62.17 per cent and oil burners 34.51 per cent. June permit figures indicate that these gains were held for the first six months and possibly exceeded.

"In the East North Central States the industry gained 33 per cent for the first six months over the same period of last year."

Stories similar to this one were carried by a great number of newspapers, among them the South Bend (Ind.) *Tribune*, the Wilmington (Ohio) *News-Journal*, the Chattanooga (Tenn.) *News*, the Portland (Ore.) *Daily Journal of Commerce*, the Hartford (Conn.) *Times*, the Cincinnati (Ohio) *Enquirer* and the Detroit (Mich.) *Times*.

Heating Developments

- ***Automatic heat reaches the moderate price home—Proper installations by reputable contractors save many a headache for the home owner and the mortgage holder***

"What's New in Heating," an article appearing in the September *National Real Estate Journal,* is a thorough outline of recent developments in equipment and accessories.

Discussing automatic heating the articles says, "Today the convenience of automatic firing and automatic control is included in some houses selling as low as $6,000 —brought to the level of the man earning as little as $3,000 per year. And with it he may get a limited degree of winter air conditioning. . . ."

A common-sense angle for the real estate man is suggested in this paragraph: "With the growing complexity of the heating plant, correct installation under the supervision of a thoroughly experienced and competent heating contractor is of the utmost importance. Nothing, with the possible exception of a leaking roof, can cause so much grief for the home owner (and incidentally for the holder of the mortgage) as a troublesome heating plant. Correct design of the piping system, adequate pipe and boiler size, and the proper amount of radiation are among the many features which distinguish the good heating plant from a 'jerry-built' job. . . ."

This article is a Plumbing and Heating Industries Bureau release.

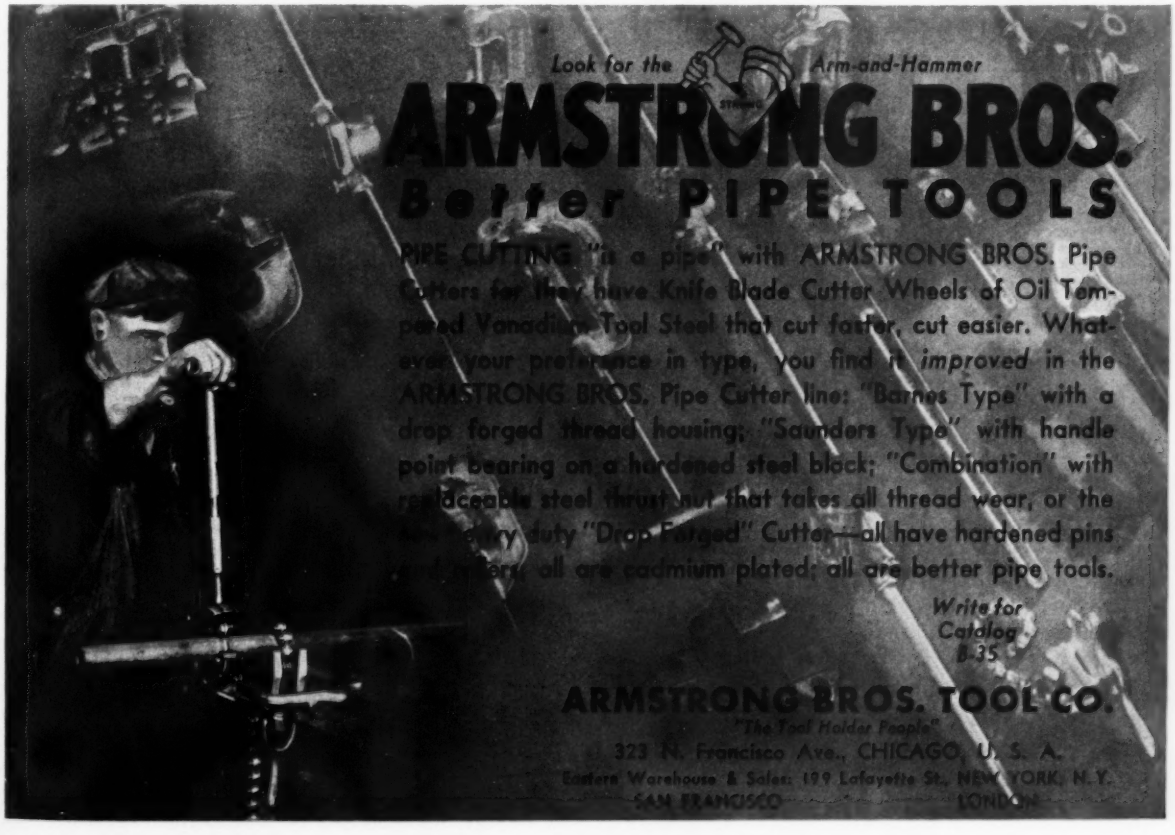
Your Own Story

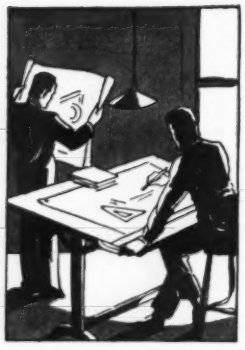
- ***Contractor-dealers can perform a service for themselves and for the industry as a whole by sending prepared releases to their local newspapers***

Below is a prepared news release which contractor dealers should send to their local newspapers, with the addition of their name and address in the blank spaces, to cooperate in the drive to refute price alarmists.

With rents rising rapidly and an actual housing shortage appearing probable in the not distant future, ————, plumbing and heating contractor of ————, today recommended the present as a good time for home building. Contrary to popular belief, he says, the cost of building materials has not risen unduly in comparison with the prices of other commodities.

"This is an even better period for modernizing," said Mr. ————. "Plumbing and heating prices, for example, are quite low in comparison with other building materials and with prices in general. According to the Bureau of Labor Statistics, the dollar which in 1926 would buy 100 cents worth of plumbing and heating equipment now purchases $1.27 worth.


Look for the Arm-and-Hammer
ARMSTRONG BROS.
Better PIPE TOOLS
PIPE CUTTING "is a pipe" with ARMSTRONG BROS. Pipe Cutters for they have Knife Blade Cutter Wheels of Oil Tempered Vanadium Tool Steel that cut faster, cut easier. Whatever your preference in type, you find it improved in the ARMSTRONG BROS. Pipe Cutter line: "Barnes Type" with a drop forged thread housing; "Saunders Type" with handle point bearing on a hardened steel block; "Combination" with reversible steel thrust nut that takes all thread wear, or the heavy duty "Drop Forged" Cutter—all have hardened pins and rollers; all are cadmium plated; all are better pipe tools.
Write for Catalog B-35
ARMSTRONG BROS. TOOL CO.
"The Tool Holder People"
323 N. Francisco Ave., CHICAGO, U. S. A.
Eastern Warehouse & Sales: 199 Lafayette St., NEW YORK, N. Y.
SAN FRANCISCO
LONDON



Questions

Unit Heaters . . . Faucet Noise . . . Greenhouse Heating . . .

Unit Heaters

- *Proper methods of connecting a split heating system are discussed for the benefit of this reader*

To the Editor:

Enclosed is a rough sketch—Fig. 4—of a heating system in a public assembly building where the boiler is a gas-fired unit with the gas shutting off at 5 lb. pressure; the system contains one radiator and three ceiling hung unit heaters. Each unit is independently controlled and the bottom of the lowest unit is 18 in. above the water line of the boiler, which is very steady. The trouble which we have is that water spurts out of the air vent valves when the units are started, particularly the top unit. Taking it for granted that the pipe sizes are right—for they have been checked many times—can you give us any information as to what might be the cause of the trouble?

Ohio. C. P. J.

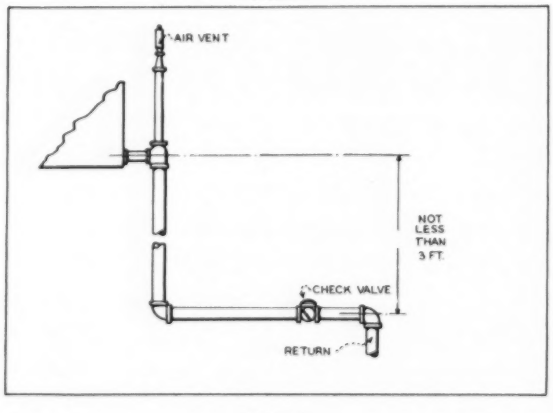


Fig. 1

To the Reader:

Assuming that the pipe sizes and pitch are correct as you say, we are of the opinion that the cause of your difficulty is the fact that you have used checks on the returns but have not provided for any water head to operate these checks without sealing up the air vent connection. What we mean by this will be plain by referring to Fig. 3 where it is shown that if it takes about 4 in. of water head to open the flapper on the check—as is usually assumed to be a fair allowance—the water will rise up into the air vent pipe and as air is relieved from the vent the steam pressure gradually will drive up the water in this pipe until it, too, comes out of the air valve. When the system is warming up there may be not only this four inches to be provided but there also may be, and probably is, a pressure difference between the return outlet on the unit and the pressure on the return. If this occurs the water will rise 12 in. more for every 0.43 lb. difference in these pressures. This is shown in the diagram of Fig. 2.

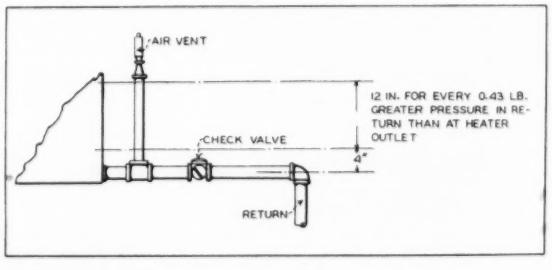


Fig. 2

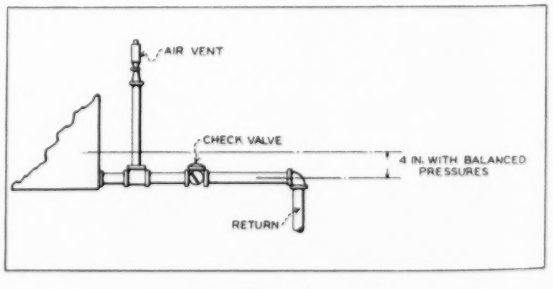


Fig. 3

Our remedy would be to drop the check down as far as possible in the manner shown in Fig. 1 and not less than 3 ft. which should be sufficient; on the lowest unit

this would mean that the check would come below the water line but we cannot see that this would do any particular harm.

Faucet Noise

• *Several solutions to remedy faucet noises are suggested in the reply to this question*

To THE EDITOR:

We have just installed a plumbing job in a two apartment building and ever since the apartments have been occupied the tenants have complained of unusual singing noises coming from the faucets. Thinking that the faucets themselves might be the cause of the trouble, we changed these but with no beneficial effect. We have used extra precaution in running our lines and supporting the pipe. Do you have any suggestion as to how we might remedy this situation?

Md. M. L.

To THE READER:

Ordinarily the flow of water through the common system of service piping does not result in noise unless the lines are small and the pressure high. If your pressure is not over 30 to 40 lb., and your lines are clear with

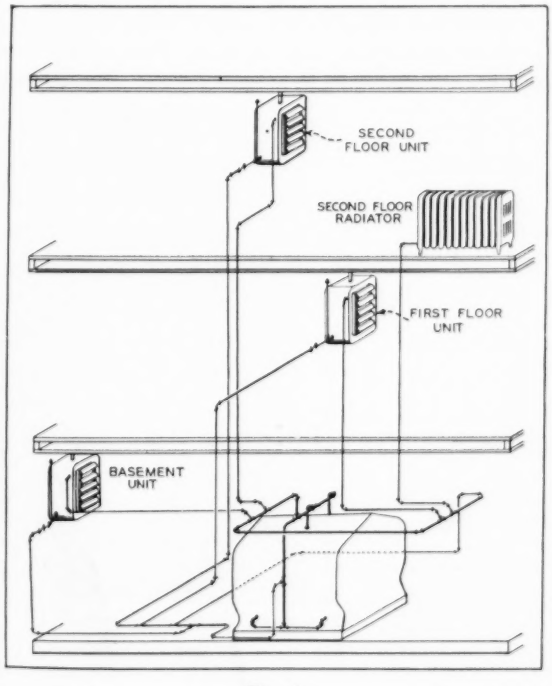


Fig. 4

the interiors of the valves and taps tight you should have no trouble. A small stone in the pipe, or other obstruction which does not close off the flow entirely would be likely to give you noise when the taps are opened. Defective water meters may be a cause of noise although this usually is of a clicking type and not

It's a good guess that nine out of every ten jobs are steel pipe jobs in which the selection of the pipe is left to you. Thus, it becomes your responsibility to select pipe that will give your customer full dollar value and at the same time insure profit for you. • That's why many engineers and contractors have discontinued the use of "any steel pipe." They insist on Fretz-Moon Pipe — because it is sound in every respect and because it permits them to use pipe of unusually high quality at no increase in price. • They know, too, that because of the exclusive "continuous process" of manufacture, all uncertainty and guess work is eliminated — and the finished pipe is exceedingly uniform in size, weld, ductility, cleanliness, threading and galvanizing — thus making possible economies in installation. • Ask your jobber for Fretz-Moon Pipe. If he cannot supply you, write us.

FRETZ-MOON TUBE CO., INC.
BUTLER • PENNA.

TRY FRETZ-MOON PIPE
—AND KNOW THE DIFFERENCE

Easy To Understand Features

YOU DON'T HAVE TO BE AN ENGINEER TO UNDERSTAND WHY THE WATERFILM BOILER DOES SUCH A GOOD JOB
Features:
• Economy
• Quick Heat
• Sustained Heat
• Beauty
• Compactness
• Quality Welded Steel Construction
• Plenty of Domestic Hot Water the Year 'Round.

of the KOVEN WATERFILM BOILER *mean Quick Sales For You*

If you can give your prospects a simple, clear, concise description of a boiler—one that they can understand—you've gone a long way toward convincing them and making a sale.

The KOVEN WATERFILM BOILER gives you just such an opportunity. When you say that Quick Heat is obtained because the generators (containing a small volume of water) are placed above and at right angles to the combustion in order to obtain maximum heat, you can illustrate this principle by showing prospects the candle test. That tells the story simply and convincingly. They can also understand why the remaining large volume of water in the boiler sustains heat longer. By combining Quick Heat and Sustained Heat they can easily appreciate why the KOVEN WATERFILM BOILER gives such an efficient, economical heating performance.

Stress the simplicity of the WATERFILM BOILER'S operating features when you talk to your prospects. It means surer, quicker sales for you.

Write today for further information and catalog.

WATERFILM BOILERS, INC.
154 Ogden Ave. Jersey City, N. J.
A KOVEN PRODUCT

a "singing" noise such as you complain of. We would suggest that you first see that the pressure is not allowed to become excessive by using a pressure reducing valve if necessary and then to investigate the shut off valve and any other valves in the line to see that they open fully and that the interior parts are not loose.

One way to locate the cause of the trouble is to open faucets, one at a time, from the last one on the line, toward the street connection until the nearest one to the street supply has been tried. As soon as a faucet is found which can be operated without singing it would indicate that the noise originates on the house side of this connection and this would give you something to work on. If all of the faucets result in singing it would indicate that the trouble is between the first faucet off of the line and the street supply.

Domestic Hot Water

• *An unusual problem—deaerating hot water—confronts this reader. One method of doing this is presented*

To the Editor:

Our company has been called upon to install a domestic hot water system that will supply 7,000 gallons of water per hour and this water is to be 97 per cent free of all oxygen. The building in which this system will be installed is about 800 ft. long with wings on each end which are about 100 ft. long. There are 150 fixtures to be supplied from this system. As we have never had this particular type of work before, we should appreciate your advice.

Pa. P. G. G.

To the Reader:

One method of removing free oxygen from water—and we presume that it is to free oxygen that your

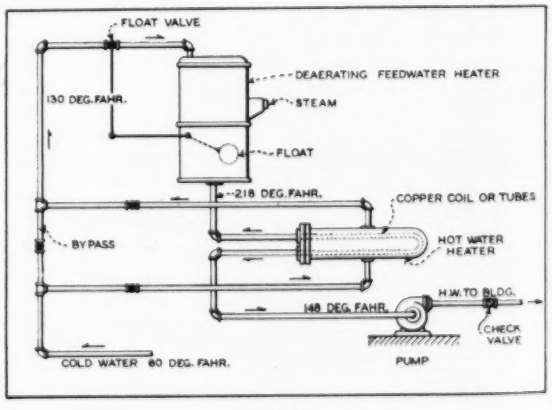


Fig. 5

specification refers—is to heat the water by passing it through a deaerating feed water heater of open type which will remove over 99 per cent of this oxygen. In this process it is necessary to heat the water to about 218 deg. Fahr. requiring about 5 lb. steam pressure on

the heater and then to inject this water into the system by means of a pump which would have to be kept in operation constantly. This water, of course, would be too hot to use on the plumbing fixtures but it could be reduced in temperature by carrying it through a heat exchanger similar to a hot water heater and running the cold water to the feed water heater through this heat exchanger before it enters the feed water heater thus reducing the amount of steam required. See Fig. 5.

If the cold water to be heated is assumed at about 60 deg. Fahr. and the water going to the heater is desired at, say, 130 deg. Fahr. the average temperature of the makeup would be

(130 plus 60) / 2 or 95 deg. Fahr.

while if the water from the heater comes out at 218 deg. Fahr. and is cooled down to 148 deg. Fahr. the average temperature of this water would be

(218 plus 148) / 2 or 183 deg. Fahr.

and the average temperature difference in the water would be for the heat exchanger

183 deg. Fahr. minus 95 deg. Fahr. or 88 deg. Fahr.

In the first case we are heating the water from 60 deg. Fahr. to 130 deg. Fahr. or a rise of 70 deg. Fahr. while in the second case we are cooling an equal amount of water from 218 deg. Fahr. to 148 deg. Fahr. or also 70 deg. Fahr.

The heat transfer from a coil in a multitube storage hot water heater under 88 deg. Fahr. average temperature difference will be about 18,000 Btu. per sq. ft. per hour and you are to supply 7,000 g.p.h. of hot water which might have a peak flow of three or four times this amount for short periods or at a 25,000 g.p.h. rate; 25,000 g.p.h. is

25,000 × 8⅓ lb. or 208,000 lb. per hour max. rate

and if this amount of water is to be raised or lowered 70 deg. Fahr. the number of Btu. required will be

208,000 × 70 Btu. or 14,560,000 Btu.

which divided by an efficiency of 18,000 Btu. per sq. ft. of coil surface shows that about 810 sq. ft. of coil would be required in the exchanger.

The feed water heater would have a rating of 208,000 lb. per hour / 30 lb. or about 7,000 boiler h.p.

Greenhouse Heating

- *Greenhouse heating is not an unusual problem; calculations for such work are discussed*

To the Editor:

Can you supply me with some information in regard to the heating of a greenhouse which is 84 ft. long, 20 ft. wide and with the ridge 11 ft. high as shown? The north end is built up against a frame building that is to be used for a work shop and boiler room; the sides are 6 ft. high, 42 in. being of wood covered with heavy paper and roofing and 30 in. being of glass. What we want to know is the amount of radiation required to keep the inside of this greenhouse at 50 deg. Fahr., 60 deg.

QUALITY..LIKE WATER.. ...SEEKS ITS OWN LEVEL

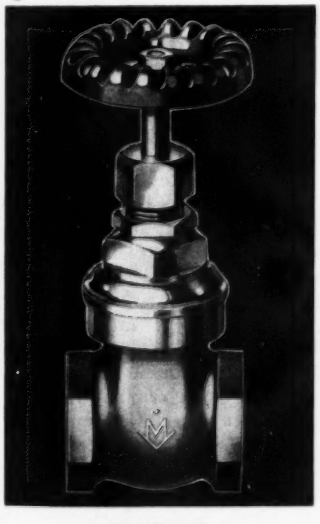


Fig. No. 101
Non-rising Stem Gate Valve

MILVACO District Offices are located in all principal cities and MILVACO representatives are equipped to render an intimate co-operative service in connection with the sale and installation of MILVACO products.

Consult your illustrated condensed MILVACO price lists for your requirements. If you need additional copies, write us.

That's why MILVACO

HEATING SPECIALTIES & APPROVED BRONZE VALVES ARE SOLD BY LEADING RECOGNIZED WHOLESALERS THROUGHOUT THE NATION

MILVACO Distributors are those recognized, reliable wholesalers whose reputation and integrity are founded upon service in its fullest interpretation.

It is a natural sequence, therefore, that discriminating buyers in the heating installation and building maintenance fields should prefer MILVACO Heating Specialties and Approved Bronze Valves because MILVACO products meet the most exacting standards in appearance, engineering, design and service requirements.

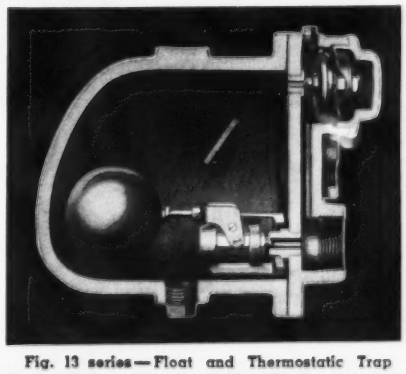


Fig. 13 series—Float and Thermostatic Trap

MILWAUKEE VALVE COMPANY
Milwaukee Wisconsin
Manufacturers of MILVACO Heating Specialties and Approved Bronze Valves

Fahr. and 70 deg. Fahr. when the outside temperature is 10 deg. Fahr. below zero, for both hot water and steam;

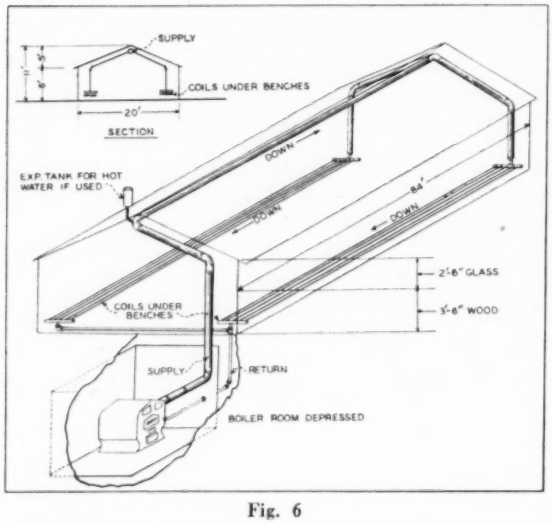


Fig. 6

also the size of the boiler required. We will appreciate any suggestions you have to offer as to piping and so on.

Ill. F. S. J.

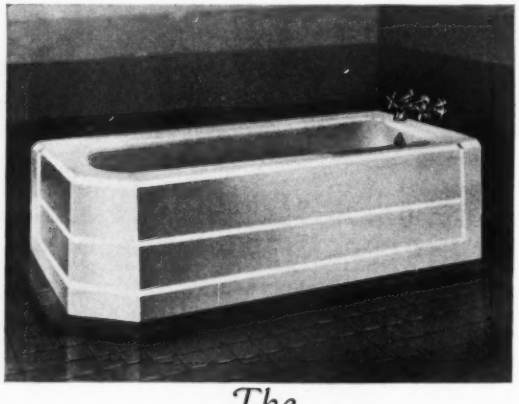
To the Reader:

It would seem from our figures that the amounts of radiation which you would require for the various temperature rises which you have specified and for an outside temperature of 10 deg. Fahr. below zero for both steam and hot water would approximate the following:

Temp. deg. Fahr.	Radiation Including Piping		Boiler Capacity
—10 to 50	Hot Water	1,240 sq. ft.	1,600 sq. ft.
	Steam	781 sq. ft.	1,000 sq. ft.
—10 to 60	Hot Water	1,420 sq. ft.	1,775 sq. ft.
	Steam	900 sq. ft.	1,125 sq. ft.
—10 to 70	Hot Water	1,620 sq. ft.	2,000 sq. ft.
	Steam	1,020 sq. ft.	1,300 sq. ft.

In the above the piping in the greenhouse is all counted as heating surface as it is uncovered and helps to warm the building; the boiler ratings are in sq. ft. of equivalent steam or hot water surface as the case may be. Usually it is customary in this type of work to depress the boiler room below the greenhouse floor some 8 to 9 ft. in order to obtain good circulation and to get added height for the boiler chimney which is low usually, due to the height of the rest of the building. If you cannot obtain the height of chimney for which the boiler is rated you may have to take this up with the manufacturer and increase the boiler somewhat to compensate for the lesser amount of draft obtained.

Usually the piping is carried from the boiler room up to the peak of the building and run along the peak to the far end where the main splits into two branches which drop down and feed the lines of pipe which are



The NEPTUNA Corner Bath

THIS SHIELD IS YOUR PROTECTION

IN HARMONY WITH THE MODERN BATHROOM

THE DISTINCTIVE ENAMELED WARE FOR THE DISCRIMINATING CUSTOMER

HARMONY is the keynote of the modern bathroom. Harmony is also the keynote of the beautiful new NEPTUNA Corner Bath pictured at left. While specifically designed as a companion fixture to the new WINDSOR Lavatories introduced recently, the NEPTUNA, with its sweeping graceful lines and varied, distinctive hues, is styled to harmonize with virtually *every* modern bathroom interior. You'll find that this latest creation of *United States* craftsmen . . . by virtue of its sheer and sparkling beauty . . . will quickly captivate the hearts of your feminine customers and open the way to *sales*. For true harmony in the modern bathroom, recommend both the NEPTUNA Corner Bath *and* the WINDSOR Lavatory. Write for the complete details.

United States Sanitary Mfg. Co.

GENERAL OFFICES: PITTSBURGH, PENNSYLVANIA

under the benches and supported from the benches. These lines of pipe are carried back to the boiler end of the building and have the returns connected together and carried back to the boiler. The lines under the benches may be anything from 3½ in. down to 2 in. in size. If a steam boiler is used, the water line of the boiler should be 2 ft. 6 in. below the floor of the greenhouse or not less than 18 in. as a minimum. A typical arrangement is shown in Fig. 6.

Questions For READERS

Reproduced below is the reply which was selected to answer the question asked in the August issue of DOMESTIC ENGINEERING. Almost all of the answers were in agreement, but the one given is one of the clearest replies sent in. The question was:

What should be the capacity of a septic tank for 20 persons?

In order for the bacteria in the septic tank to have an adequate time to break up the solids it is necessary for the sewage to remain in the tank approximately 24 hrs. Of course this time cannot be determined very accurately but it is the basis for good septic tank design.

The amount of sewage per person per day is most frequently taken as 100 gal., so that for 20 persons the sewage to be treated would amount to about

100 gal. × 20 or 2,000 gal.

and this 2,000 gal. may be changed to approximate cubic feet by dividing by 7.5 as there are 7.48 gal. to a cubic foot, or

2,000 gal. / 7.5 or 266 cu. ft.

If the water in the tank is made 4 ft. deep the area of the retention chamber then would have to be

266 cu. ft. / 4 ft. or 66½ sq. ft.

Should it be decided to make the retention chamber 7 ft. long the width would have to be

66.5 sq. ft. / 7 ft. or 9½ ft.

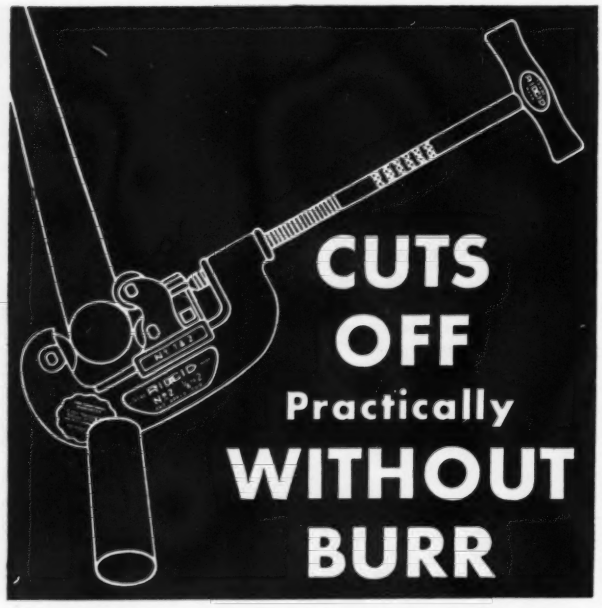
This is exclusive of the discharging chamber in which the sewage siphon is located.

How Would You Answer This Question?

A steam heating system operating at 1 lb. gauge pressure is supplied with steam from a steam line at 100 lb. gauge pressure through an ordinary type of reducing valve; what will be the temperature of the low pressure steam at the outlet of the pressure reducing valve and how many degrees of superheat will be present?

Again we present a question with a mathematical slant which should interest all who are of a mathematical turn of mind. From among the answers which are sent in, the one which is correct and most interestingly written will be paid for and published in the December issue of DOMESTIC ENGINEERING.

MYERS
QUALITY
LEATHERS
for
DURABILITY,
SERVICE
and Profit!
MYERS
QUALITY
PUMP LEATHERS
Take Off Your Hat To The MYERS
Made of Selected Tanned Stock, Scientifically Treated, Formed and Sized by Special Process to Resist Chemical Action of Water and Other Elements Which Attack Them and to Withstand Severe Pumping Service.
Durable Dependable
Manufactured in All Standard Sizes By
THE F.E. MYERS & BRO. CO.
ASHLAND, OHIO
Myers Pump Leathers mean greater customer satisfaction and better profit for you. First in quality. Durable and dependable. First in service. Dozen lots in attractive cartons. All standard sizes. You are always sure that Myers Quality Leathers offer superior performance values. Ask our salesman when he calls or write us.
THE F.E. MYERS & BRO. CO.
ASHLAND, OHIO
PUMPS-WATER SYSTEMS-HAY TOOLS-DOOR HANGERS



And This RIDGID Thin Tool Steel Blade Wheel Is The Reason

If you want a new experience that will show you how quickly, easily and cleanly pipe can be cut, try a RIDGID Cutter.

You'll find the patented RIDGID Cutter wheel a real improvement. Coined out of tool steel sheet, hammered, heat-treated and cast into a steel-bearing hub, it rolls smartly through any pipe, practically without burr—many more cuts per wheel.

Try one at your Jobber's

Save 75% of Your Pipe Wrench Repairs

The RIDGID Wrench housing is unconditionally guaranteed not to break or warp—so goodbye to 75% of your wrench repairs.

THE RIDGE TOOL CO., ELYRIA, OHIO

RIDGID PIPE TOOLS

PIPE WRENCHES, CUTTERS, THREADERS, VISES, EXTRACTORS

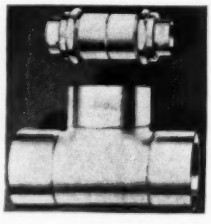
PRODUCTS *for* DEALERS

Large Copper Tee— Copper Expansion Joint

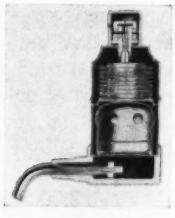
The illustration presented here shows a large copper tee and a copper expansion joint which have been announced recently.

The copper tee is designed to be used in making three-way sweated connections where the three connected pipes are made of copper. It is listed as being a 4 in. fitting and the largest wrought copper tee ever developed. The tee, together with the 4 in. elbow and other fittings recently placed on the market by this manufacturer, completes the size range in copper fittings. The line now includes sizes from ¼ to 4 in. The wrought copper expansion joint, shown at the top of the illustration, has been designed for use in all cases where allowance for line expansion must be provided. It is indicated that the expansion joint is made for copper to copper sweat connections from ¾ to 2 in. sizes.

These new fittings are announced by Arco Pipe & Fittings Division of American Radiator Co., 40 West 40th St., New York City.



Tee and Expansion Joint



Vacuum Valve

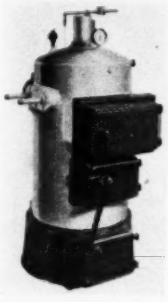
Tamper-Proof Vacuum Valve

The accompanying illustration shows a new type of air valve which has been announced recently. It has been designed to render tamper-proof any setting which may be made on the valve.

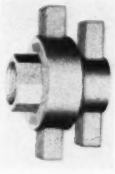
Five venting regulating orifices are provided. One is located on top of the cap. The size of this particular orifice is 0.013 in. The collar of the regulator has four additional venting regulator orifices, measuring 0.030, 0.050, 0.070, and 0.090 in. respectively. The collar is made so that it can be turned, thus permitting any of these four orifices to coincide with the single port on the bushing. The orifice on the cap, in addition to any one of the four orifices on the collar, gives the user what is described as a two-way venting arrangement. It is pointed out that if one orifice should become clogged with dirt or sediment, the other can still perform its venting function. These five different sized orifices with their five speeds enable each radiator, no matter how near or

remote, to deliver just the proper degree of heat. The valve also is constructed with the view of enabling it to break its own vacuum, in which case the ports of all valves reopen to allow proper venting at the next cycle of heat.

This new vacuum valve is announced by Slater Mfg. Co., 24 Water St., Wakefield, Mass.



Small Heating Boiler



Forged Steel Unions

Small Model Heating Boiler

A small steel boiler—the smallest in this particular line—has been announced and is illustrated here. It is designed for hand firing.

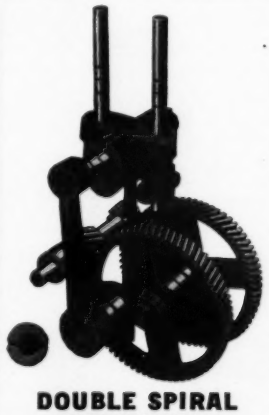
This new boiler is described as having a radiation capacity of 320 ft. of steam and 510 ft. of water. A domestic hot water tank with a capacity of 65 gal. of water is installed, but a larger tank will be provided, it is indicated, if such is desired. This boiler may be adapted for steam; hot water, gravity and forced flow; or direct water heater arrangements. The boiler is described as having a heating surface of 24 sq. ft. and a grate area of 2.2 sq. ft. Other listed features of the unit are: welded in one piece; tubes of copper alloy; double travel through both banks of tubes; doors with gas-tight ground joints; flue cleanout door insulated with refractory lining and an efficiency which ranges up to 80 per cent or more.

The new boiler is announced by Kewanee Boiler Corp., Kewanee, Ill.

New Forged Steel Unions

Unions which are described as having hammer lugs made of forged steel have just been announced. These unions have been designed for use in piping systems which require frequent or quick dismantling, either to save time on the job, or for emergency purposes.

It is indicated that these unions comprise two distinct lines: first, forged steel screwed unions with one set of lugs; and second, forged steel screwed unions with two sets of lugs, illustrated here. For quick dismantling, it is indicated all that is necessary is to strike the lug a blow with a hammer. This turns the connecting part of the union and makes it possible to break the joint immediately. The lugs are described as adding to the convenience of breaking a joint in cramped spaces where room for working is at a minimum. The single lug union is listed as being made with forged steel tailpieces

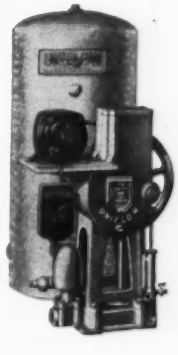


DOUBLE SPIRAL CUT GEARS!

Only Uniflow gives you double spiral cut gears straddling the sucker rod to divide the load and double the force. Screw-driver adjustment permits take-up of main bearings after years of troublefree service. That's why Uniflows retain their economy and quietness!

Here's More for Your Deep Well System Dollar

UNIFLOW Deep Wells run in an oil bath that is as positive as it is simple—V-belt drive gives you a smooth, sure flow of power. Special Bronze Bearings running in oil that never seem to wear out. And don't forget it's the easiest pump to install that you ever serviced—easy to get at any parts and quiet as a straight eight.



A REAL BARGAIN FOR SOMEBODY!

An 18" Stroke Heavy Duty Deep well pump with large capacity, complete with motor and controller $800.00 List

$84.00 less big discount buys this deep well pump complete with motor, automatic pressure switch, relief valve, and differential cylinder.

$104.00 less big discount buys the deep well system at the right with 42 gal. galvanized tank, air control and pump equipment as listed above.

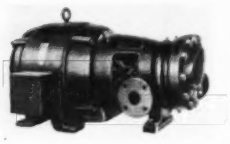
UNIFLOW MFG. CO., 1680 E. LAKE RD., ERIE, PA.

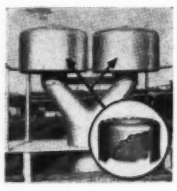
Shallow Well Pumps - Deep Well Pumps - Cellar Drainers - Water Softeners - Klarifiers
Water Coolers - Milk Coolers - Septic Tanks - Beer Pumps
Domestic and Commercial Refrigeration Draught Beer Cooling Systems

Sell a Lively Line UNIFLOW UNIFLOW MFG. COMPANY, Erie, Pa.

and threadpieces in sizes of 2, 2½, 3 and 4 in. (these parts are of cast steel on the 4 in. size) and have lugs on the union ring. The double lug union is listed as being of all-forged steel, having lugs on both the union ring and the threadpiece. It is made in ⅜, ½ and ¾ in. sizes.

These new unions are announced by Crane Co., 836 S. Michigan Ave., Chicago, Ill.





Above, Pump and Motor
Right, Air Filter

Pump and Motor Built Together

This two stage built-together pump has just been announced and is shown in the accompanying illustration. It has been designed to handle liquids that are low in viscosity and are free from foreign matter.

The pump is described as consisting essentially of a two-stage, centrifugal pump, with enclosed bronze impellers. It is mounted directly on the shaft of a splash-proof motor. The impellers for the two stages, it is pointed out, are placed back to back. Because of this construction each impeller compensates the thrust of the other, it is indicated. Improved hydraulic design has been attained, according to advantages listed for them, through the placement of the first stage unit next to the motor and the second stage on the outside, simplifying the cross-over passage, and placing the stuffing box under suction instead of pressure. The pump is designed to operate against heads up to 500 ft.

Fairbanks, Morse & Co., 900 S. Wabash Ave., Chicago, Ill., announces this new pump.

Metal Fabricated Air Filter

Designed to be installed any place where a source of clean air is desired is the air filter shown in the accompanying illustration. The illustration shows a typical exterior, multiple-installation of two hooded units.

The filter is described as being a compact, cleanable, metal fabricated air filter obtainable in various sizes for internal combustion engines, air compressors, blowers and air conditioning systems. Air cleaning efficiency is indicated to be better than 99 per cent and restriction less than ⅛ in. water. The filter element may be specially constructed so that air cleaning problems requiring the removal of lint or other objectionable substances may be circumvented, it is indicated. The unit is listed as being made in all sizes up to 4,000 c.f.m. capacity, with multi-unit installation necessary only in the very largest applications. It is indicated that the unit may be disassembled

Cadwell
NO. 10 ANGLE TYPE
THERMOSTATIC
AIR VALVE

Completely thermostatically controlled. Simple in action yet positive. Furnished also in bottom outlet type, ⅛" and ¼" and ¾" x ⅜" sizes.

LOOK *First*
TO THE *Air Valves*

For a completely satisfactory heating system, look *first* to the air valves. For, more often than not, when the heating system is not functioning properly the trouble can be located in a faulty air valve . . . and it only takes *one* to cause the trouble. That is why so many contractors recommend a CADWELL Air Valve for *every* radiator. Profit by the experience of others! Write for detailed information on the CADWELL line of Air Valves, or order from your wholesaler . . . TODAY.

WE ALSO MANUFACTURE a complete line of heating specialties including the CADWELL No. 45 unit for Hot Water Heating Systems, CADWELL Control and Relief Valves and PERFECTION Floor and Ceiling Plates. All are sold only through regular wholesale channels.

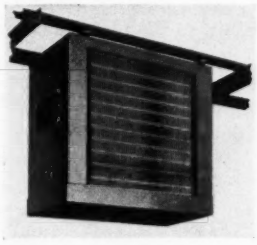
Cadwell
NO. 50 ANGLE TYPE
(DIAPHRAGM OPERATED)
VACUUM AIR VALVE

Effects equal distribution of heat to every radiator on the one pipe system. Also available in bottom outlet type, ¼" and ¾" x ⅜" sizes.

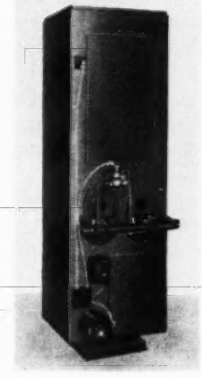
The BEATON & CADWELL MFG. CO. Established 1894 NEW BRITAIN, CONN.

by the removal of one wing nut. It is finished in aluminum enamel.

This air filter is announced by Air-Maze Corp., 812 Huron Rd., Cleveland, Ohio.



Ceiling Model Air Conditioner



Right, Gas Fired Conditioner

Gas-Fired Winter Air Conditioner

The gas-fired winter air conditioner shown here has been announced recently. It is designed for low-cost housing projects and individual apartment installations.

This unit is listed as being made in two capacities, 45,000 and 90,000 Btu. input. The conditioner was made with the thought in mind that many of the units will be installed in closets or other locations where the space is limited, consequently the depth and width of the unit have been kept at a minimum. The unit is available, it is indicated, with various combinations of controls, filters and humidifying equipment.

The new conditioner is announced by Surface Combustion Corp., Toledo, Ohio.

Air Conditioning for Home and Industry

A new air conditioning unit designed for home, office or industrial use and listed as operating without refrigeration equipment, has just been announced.

This new air conditioner is built in two models: one is for ceiling installations; the other is a floor model. Some of the listed specifications of the ceiling model, illustrated here, are as follows: capacity, 1.94 tons of refrigeration using seven gallons of water per minute at 55 deg. Fahr., with a room temperature of 85 deg. Fahr.; air delivery, 1,060 cu. ft. per minute; motor, totally enclosed, listed at ⅛ hp., 1,200 r.p.m., 110 volts, single phase, 60 cycle; copper tubing, seamless, with aluminum fins; finish, sea foam green lacquer and weight, 175 lb. The specifications of the floor model are listed as follows: capacity, 1.04 tons of refrigeration using four gallons of water per minute at 55 deg. Fahr. with 85 deg. Fahr. room temperature; air delivery, 450 cu. ft. per minute; motor, constant speed, resiliently mounted, 1/30 hp., 870 r.p.m., 110 volts, single phase, 60 cycle; tubing, seamless copper with helical wound copper fin; finish, grained walnut; weight, 160 lb.

These new air conditioners are announced by Carrier Corp., 850 Frelinghuysen Ave., Newark, N. J.

"WELL-FROM ONE WHOLESALER TO ANOTHER

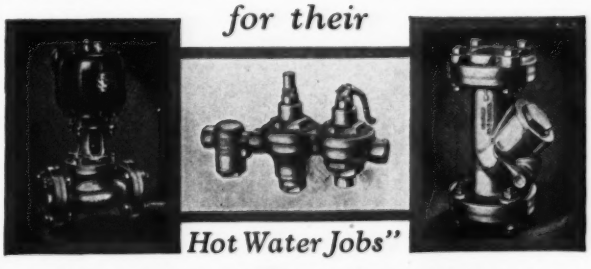
We find that—

KAINER CIRCULATING SYSTEMS

Are Steadily Preferred By

HEATING CONTRACTORS

for their



Hot Water Jobs"

THE REASONS ARE SIMPLE!

They're Mighty Dependable

1. Measured by any standard, Kainer Circulating Systems conform to the most exacting demand for automatic hot water heating equipment.

Kainer Circulators . . . reliable, quiet, efficient; Kainer Governors . . . sturdy, dependable; Kainer Circulation Controls and Accessories . . . all outstanding equipment, all pulling together as one coordinate system, each unit doing the job it is supposed to do . . . JUST AS YOU PLANNED.

Profits? Sure!—Cooperation too!

2. That is the answer to the success so many contractors have found in installing Kainer Circulating Systems . . . knowing beforehand that each complete system—each unit—measures up to a standard. When you leave a job knowing THAT, it means a good clean profit and another satisfied customer.

Sales Policy

3. AND REMEMBER THIS . . . Kainer Circulating Systems are backed by a sales policy that gives you COMPLETE trade protection . . . a line of hot water heating equipment that reaches the consumer ONLY through the plumbing and heating contractor.

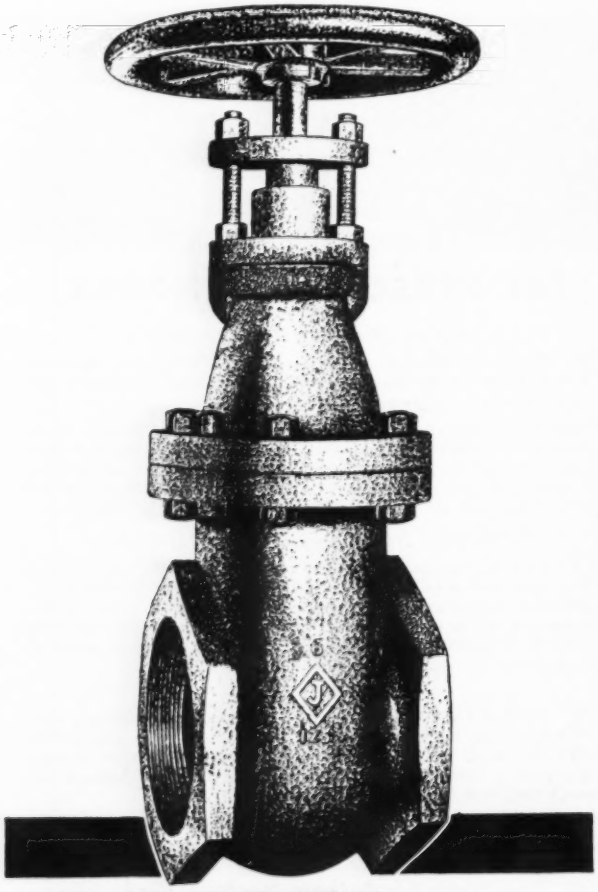
For your protection, and for your success in selling automatic heat, INSIST on Kainer. Your local wholesaler will gladly supply your needs.

Write for Bulletin No. 66 Today!

KAINER & COMPANY

761 MATHER ST. CHICAGO ILL.

●85 years ago the power elevator was invented, thereby making the modern sky-scraper possible. That same year, 1852, Jarecki produced its first valves. Like modern buildings, Jarecki has grown through the years, but we have never changed our creed that a BONUS OF STRENGTH in valves gives a BONUS OF VALUE.



JARECKI VALVES

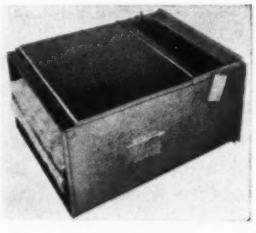
JARECKI MANUFACTURING CO., Erie, Pa.

Air Filter with Volume Control Cabinet

The air filter shown in the accompanying illustration has just been announced as being available in a new cabinet designated as the volume control cabinet.

The cabinet is described as being installed easily in the return air duct where it connects to the plenum chamber. The cabinets, it is indicated, may be connected on sides or rear of return air plenum as the case may demand, or if all return air comes from one side or the rear, the cabinets may be placed parallel to each other and connected to the plenum. Some of the listed features of the cabinet are: gives a longer life to filters (1,600 sq. in. of filter area); filters never become completely plugged; filters can be quickly removed for cleaning or replacement; it signals owner when it is time to replace the filters and it eliminates fire hazard. It is indicated that for summer operation when using basement air, all that is necessary is to unsnap spring from door on cabinet and turn by-pass deflector plate over to permit all air to go through filters.

Enterprise Boiler & Tank Works, 1955 N. Long Ave., Chicago, Ill. announces this new air filter and volume control cabinet.



Above, Bronze Valve
Left, New Air Filter

Bronze Valves— Angle and Globe

The valve shown in the accompanying iliustration has just been announced and is described as available in both globe and angle types.

The disc and seat of the valve are listed as being made of high chrome, non-corrosive, stainless steel, heat treated to a minimum Brinnell hardness of 500. It is because of this hardness, it is indicated, that the valve can be closed on sand, slag, scale and similar foreign substances without injury to either the seat or disc. Other listed features of construction are: malleable iron handwheel; rolled bronze stem; brass gland and bronze bonnet. It is indicated that the seat ring has a seat angle of 15 deg. and will not steam cut or gall.

These new valves are announced by Walworth Company, 60 East 42nd St., New York City.

Improved Pneumatic Thermostat

The pneumatic thermostat, shown in the accompanying illustration, has just been announced. It is described as having been improved in appearance, protective features and operating range.

The instrument is designed to operate literally in a

sealed chamber, protected from the contamination of dirt, chemicals, chalk dust or any other foreign substance, and is free from tampering even to the extent of preventing the disturbing of the operating mechanism through the insertion of a pencil or other object through the openings in the case. The thermostatic element is made of the same material as that used previously in the company's thermostats. It is indicated that the overall size of the thermostat has been greatly reduced and the simplified adjustment features of the previous model have been retained. It is indicated that the thermometer has been recessed for protection and that the temperature range has been changed from 35-82 deg. Fahr. to 46-90 deg. Fahr.

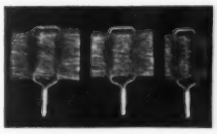
This improved thermostat is announced by National Regulator Division of Minneapolis-Honeywell Regulator Co., Minneapolis, Minn.

Rust-Proof Flue Brushes

The steel flue brushes illustrated here have been introduced recently.

It is indicated that the brushes are constructed of special rust-proof wire, are unaffected by sulphur and acids commonly found in soot, and are resistant to rust. They are well filled with bristles, are designed to do a good job of cleaning, and are resilient, according to advantages listed for them. Cadmium plated nipples are provided with the idea in mind of making it possible for the brushes as a whole to retain a bright appearance indefinitely.

These new flue brushes are announced by Schaefer Brush Mfg. Co., Milwaukee, Wis.



Above, Rust-Proof Brushes

Left, Pneumatic Thermostat

Welding Machine for Pipe Lines

Designed especially for use in welding pipe lines is this welder which has been announced recently and is illustrated here.

The welder is listed as obtainable in 300 and 400 amperage capacities. Double sediment collectors for carburetor supply, improved fool-proof idling device, 36 gal. capacity gasoline tank and an improved current switch are some of the features which are listed as contributing to the dependability of the machine under adverse working conditions. Other listed features are: close coupled design; light-weight reinforced base and framework; center lifting bail; double radiator protecting grille. The distributor and other parts are listed as being

Announcing

A NEW AND IMPROVED

BURKS

Auto-Built

DEEP WELL PUMP

Tapered Roller TIMKEN BEARING EQUIPPED

- Straightline Motion of Crosshead Without Use of Guides
- All moving parts operate in a bath of oil
- Adjustable stroke air compressor
- Combined discharge head and air chamber
- Exceptionally quiet in operation
- Tapped for 2½ in. or 3 in. drop pipe

One Price

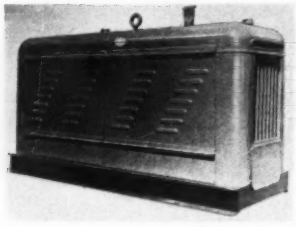
See Price List No. 40A For Reduced Prices of Complete Deep Well Systems

DECATUR PUMP CO., DECATUR, ILL.

FIG. 603-42—STYLE "C"

easily accessible, and, for operating purposes, two hinged panels are placed on each side, thereby permitting easy access to all controls.

This new pipe line welder is announced by Wilson Welder & Metals Co., Inc., 60 East 42nd St., New York City.



Pipe Line Welder

Stand for Laundry Trays

Myrastone Products Co., 7000 State Rd., Tacony, Philadelphia, Pa., announces a stand which can be used to support either porcelain, enamel or drain shelf laundry trays, it is indicated. The stands can be obtained with either an aluminum or chromium finish, in lengths from 20 in. up to 46 in. and have been tested, according to advantages listed for them, for a weight of 2,000 lb. The stands are described as having pressed steel legs, with levelers on the feet and the legs bolted to a one inch angle iron frame.

New Information and Aids to Sales

Hot Water Supply Boiler Catalog

Printed in two colors, the new 3½ by 6 in., eight page folder recently issued by The Eastern Foundry Co., Boyerstown, Pa., describes and illustrates its line of hot water supply boilers. Included in the catalog are the flat top boilers, three types of dome top boilers, laundry tops for double duty service and the magazine feed models. Beneath the two color illustration of each model are given tables of specifications including such items as capacity in gallons, grate area, firepot depth, total height, flow tapping, return tapping and smoke collar. Printed on the back page of the folder is the manufacturer's guarantee.

Automatic Water Systems Described

Red Jacket Mfg. Co., Davenport, Iowa, has just issued a 100 page, paper bound catalog covering the company's line of automatic water systems, hand and windmill pumps, cylinders and well supplies and complete air conditioning units. Illustrations which show various departments of the manufacturer's factory are used to introduce the booklet. These illustrations are followed by

SPECIAL SINKS to fit any space

Non-absorbing and non-staining, Alberene Stone is ideal for sinks and laundry trays. Tongue and groove joints with hidden bolts, permanently cemented, have the strength, solidity and tightness of one-piece units.

As you know, Alberene is natural quarried soapstone. Acid-, heat-, and wear-resisting. It can be shaped, sawed and fabricated in any desired shape or form without danger of chipping or spalling.

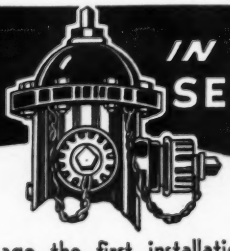
Order Alberene Sinks of any dimensions to fill any desired spaces. Shipment will be made within one week from the receipt of order and complete details as to sizes, openings, etc.

Write for special price on the Alberene 44" Laundry Tray, plain and in Duco colors.

ALBERENE STONE CORP. OF VIRGINIA
419 Fourth Avenue, New York, N. Y.
Quarries and Mills at Schuyler, Va.

ALBERENE STONE SINKS • TRAYS

FIFTY YEARS IN SERVICE



Fifty years ago the first installations of Kupferle Fire Hydrants were made. Many of these first hydrants are in use today. Quality, dependability and full value are the reasons that this year the Kupferle organization is celebrating its 80th year in business.

Send for illustrated lists and prices of

FIRE HYDRANTS — YARD HYDRANTS
WALL HYDRANTS — STREET WASHERS
PLUMBING SPECIALTIES

JOHN C. KUPFERLE FOUNDRY CO.
ST. LOUIS

80 KUPFERLE YEARS

80 YEARS OF QUALITY

another group of photographs which show the advantages to be derived from a water pressure system on the farm. The remainder of the catalog, which covers the subjects enumerated above, is profusely illustrated with photographs and drawings. The last few pages are devoted to information which has been considered as being of value to an owner or installer of pumps and water systems.

Oil Burning Steel Boiler Folder

A new folder describing its oil burning, heating boiler has just been issued by Malleable Iron Fittings Co., Branford, Conn. The folder, which measures 8½ by 11 in., is printed in two colors. The second page of the folder is devoted to a cut-away view of the complete unit—boiler, burner and casing. The third page is almost completely given over to an enumeration of the mechanical features of the boiler and its equipment. The last page of the four page folder has a table of specifications and measurements for the three sizes of boilers. These specifications include: steam rating; water rating; heating surface; furnace volume and chimney height and size.

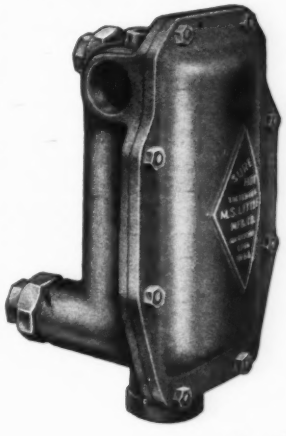
Cooling Towers— Installations and Descriptions

Lilie-Hoffmann Cooling Towers, Inc., (successors to Geo. J. Stocker) 4060 West Pine Blvd., St. Louis, Mo. has issued a new eight page catalog devoted to its line of cooling towers, both large and small. The second page of the catalog explains principles of operation of cooling towers and lists the factors governing the cooling of water by the cooling tower method. A brief history of the company is included on this page. The following pages are largely given over to illustrations of representative installations and drawings showing some of the features of construction. The catalog which measures 8½ by 11 in. is printed on a light green paper.

Pump Literature— Announcement

Aurora Pump Co., Aurora, Ill., has just issued six new pieces of trade literature. Five of these are catalogs and the sixth is an announcement of an important change in personnel. The catalog which deals with cellar drainers measures 3¼ by 6 in. and is composed in the form of a quadruple folded broadside printed in two colors. This folder gives the specifications of the overall design of the pump, impeller shaft, supporting pipe, float control, motor, switch, and shipping weight. An assembled view of the pump and a sectional view are included in the illustrations. Two folders are devoted to a description of the company's centrifugal pumps. One of the catalogs deals with the single stage and the other with the two stage pump. Each catalog is printed in two colors, contains four pages and measures 8½ by 11 in. Cross-sectional views of the pumps are numbered with reference numbers pointing to various parts of the pump. The parts are named in a keyed list just beneath the illustration and specifications of the pump parts are given. Another four page, two color,

1912 25TH ANNIVERSARY YEAR 1937



SURE HOT

Indirect

WATER HEATERS

An economical method of heating domestic hot water. 24 sizes with tank capacities from 30 to 600 gals. Extra heavy cast iron shell—heavy copper coil and with all capacities conservatively rated. Ample boiler, coil and aquastat openings. Brass connections to copper coil prevents domestic water from coming in contact with iron in "Sure Hot" Heaters. Clean water is assured. Furnished with or without unions.

THE M.S. Little MANUFACTURING COMPANY

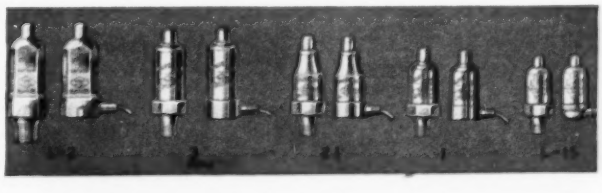
Products of

THE M. S. LITTLE MFG. CO.

HARTFORD CONN.

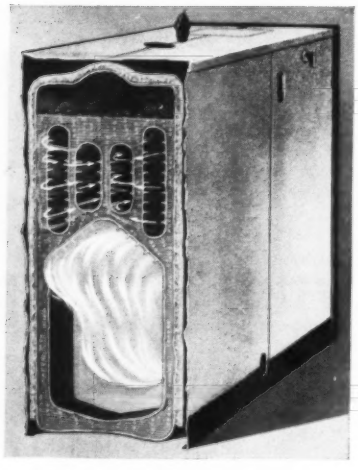
SURE HOT Line of VALVES

Modern designs in Air and Vacuum Valves in all classes—
Factory Tested and Guaranteed—
Individually boxed and in Counter Display Packages.

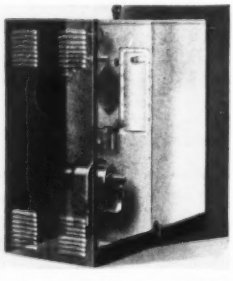


"THERE'S A COMPLETELY WATER-SURROUNDED FIRE-BOX"

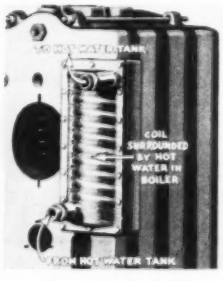
IN KOHLER'S NEW "22" OIL BOILER



• The outstanding feature of Kohler's new "22" oil boiler is the completely water-surrounded fire-box. See how the water circulates actively and completely around the *entire* fire-box and through the boiler. Hot gases of combustion pass through the boiler *four* times. Other features of Kohler's new boiler include extra-large combustion chamber . . . multiple heat-extracting fins.



Phantom of the new "22." Observe the attractive modern insulated jacket, the concealed burner and controls.



Domestic water heater for year-round hot water. The coil is surrounded by hot water in the boiler.

• The "22" has everything. It's another great Kohler sales-maker. Your customers will *like* its economy, its efficiency, its beauty. Remember, the Kohler name makes Kohler Boilers easier to sell. Get the facts. Write Kohler Co. *Founded 1873.* Kohler, Wisconsin.

KOHLER OF KOHLER

PLANNED PLUMBING AND HEATING

8½ by 11 in. folder contains a detailed listing and description of the mechanical features of turbine-type pumps for small capacities and high heads. This catalog is well illustrated and contains a table of construction specifications. The sixth catalog is an eight page, 8½ by 11 in. booklet covering deep-well turbine pumps. The two middle pages are taken over by a sectionalized view of one of the deep-well pumps. This illustration likewise has a number-keyed list of the various parts of the pump.

Grease and Oil Interceptors— Back Water Sewer Valves

Josam Manufacturing Co., Empire Bldg., Cleveland, Ohio, has just issued three new folders, printed in two colors and measuring 8½ by 11 in. The first folder covers the back water sewer valves manufactured by the company. Phantom views of the valves show the swing flap in the interior of the valve and a line drawing gives the roughing-in dimensions. The drawing is supplemented by a table of dimensions and list prices. The remainder of the four page folder is devoted to a written description of the valve and a list of cities in which the company's products are sold. The second folder describes grease interceptors and is likewise illustrated with a phantom view of the device and a line drawing of details and dimensions. It contains six pages. Restaurants, hotels, hospitals and packing houses are but a few of the places, where, it is indicated, the grease interceptors will be of value in preventing clogged drain pipes. The third bulletin is devoted to a description of oil interceptors. It is indicated in the bulletin that the oil interceptors aid materially in protection against fire, explosion and water pollution. This folder, also, contains six pages.

Electric Spot and Butt Welding Catalog

"Electric Spot and Butt Welding Machine" is the title of the 100 page catalog recently issued by Eisler Engineering Co., 740 South 13 St., Newark, N. J. The catalog describes the company's line of spot and butt welders, wire portable and special welders, high frequency and brazing and soldering machines, spot welding timers and miscellaneous accessories. The catalog also contains a table of spot welder characteristics and another table of weldable materials which indicates which metals can be welded to other metals and what those other metals are. The catalog contains over 1,250 illustrations of welders, parts, accessories and problems. The booklet measures 8½ by 11 in.

Air Conditioning Manual

"Air Conditioning Manual" is the title of a 238-page book recently issued by Domestic Engineering Co. The book is divided into two sections, the Blue Print Section and the Technical Reference Data Section. The Blue Print Section contains 256 blue print charts consisting of reference data relative to such subjects as humidity, air temperatures, problems in air conditioning, design of duct systems, heat loss from flowing water and design

of gravity hot water systems. Each chart is supplemented by a written description. The Technical Reference Data Section augments the information supplied in the first section and contains charts and tables of a more detailed nature. The book has a semi-flexible binding and may be obtained from Domestic Engineering Co., 1900 Prairie Ave., Chicago, Ill. The cost of this new book is $3.50 per copy.

Air Conditioning Educational Outline

"The Air You Breathe," is the title of a twelve page, paper covered booklet just issued by Thermo Air Conditioning Institute, Inc., 2850 W. Avenue 35, Los Angeles, Cal. Included with the booklet are two other pieces of literature. One of these deals with the course of training offered by the Institute and the other with statistical data pertaining to air conditioning. The booklet, printed in two colors, outlines the field of air conditioning, open to the properly trained man. The book is profusely illustrated with photographic reproductions of the various types of places, such as hotels, offices, restaurants and stores, that are potential buyers of air conditioning equipment.

Motors for Unit Heaters and Humidifiers Described

General Electric Co., Schenectady, N. Y. has issued a new illustrated loose-leaf folder on one type of its shaded-pole motors. Three types of mountings for different uses are illustrated at the top of the second page and a partial list of applications given below includes unit heaters, ventilators, humidifiers and thermostats. The third page of the folder points out in a detailed manner the features of construction of the stator, rotor and the end flanges. The last page contains a drawing of the adjustable-screw thrust combination and four drawings which are used to supplement a table of dimensions.

Financing Plan Is Explained

Commercial Investment Trust, Inc., One Park Ave., New York City, has issued a new booklet entitled "Five Ways to Buy Equipment." The booklet, containing twelve pages, measures 7 by 10 in. and is bound in a grained surface, white paper cover and is printed in two colors. The book is a composite statement of discussions of the C. I. T. Equipment Funding Plan with several hundred prospective equipment purchasers. The funding plan is compared, through the medium of the question and answer, with four other plans of financing: short term borrowing; capital issues; "The Seller is the Banker"; cash purchase. The booklet is printed in two colors.

Asbestos Plastic Insulation Folder

Norristown Magnesia & Asbestos Co., Norristown, Pa. has just issued a four page 3¼ by 6 in., folder de-

Many fine new Super Service Stations are being protected against acid corrosion by Duriron Acid-Proof Drain Pipe and Fittings. The Sears station shown above is on Admiral Wilson Blvd., Camden, N. J. The plumber was J. J. White, Inc., Philadelphia.

DURIRON
ACID PROOF
DRAIN PIPE

Just One of Many Uses for Duriron

Wherever there is acid waste, use Duriron to avoid waste.

This rule applies to every type of structure, not only to hospital, school and industrial laboratories, where Duriron is the recognized standard for drain pipe, but also to . . .

. . . the modern "one-stop" service station with battery charging room . . . drug stores with prescription departments . . . hotel and restaurant kitchens . . . engraving plants . . . photograph studios . . . and to dozens of other places where acids eventually eat away ordinary pipe.

You'll find Duriron Drain Pipe not only perfect acid protection, but also as easy to install as ordinary drain pipe. Write us for prices.

THE DURIRON COMPANY, Inc.
Specialists in the Manufacture of Acid-Resistant Products
409 N. Findlay St. Dayton, Ohio

scribing its line of asbestos plastic insulation. The folder tells of the method which the manufacturer uses in packing its product and lists the advantages of buying the plastic packed in this manner. The booklet is printed in two colors.

Refractory Cement Uses Listed

Refractory & Insulation Corp., 381 Fourth Ave., New York City has just issued a four page, 8½ by 11 in., two color folder describing its refractory cement and the methods of applying it in its various uses. The bulletin first details the advantages of this particular cement and then lists the places to use it. Directions for mixing and applying the cement for use in repair work, for thin joints and for loose or falling brick are given. A "before and after" set of two pictures are included among the illustrations.

Electrode and Welder Information

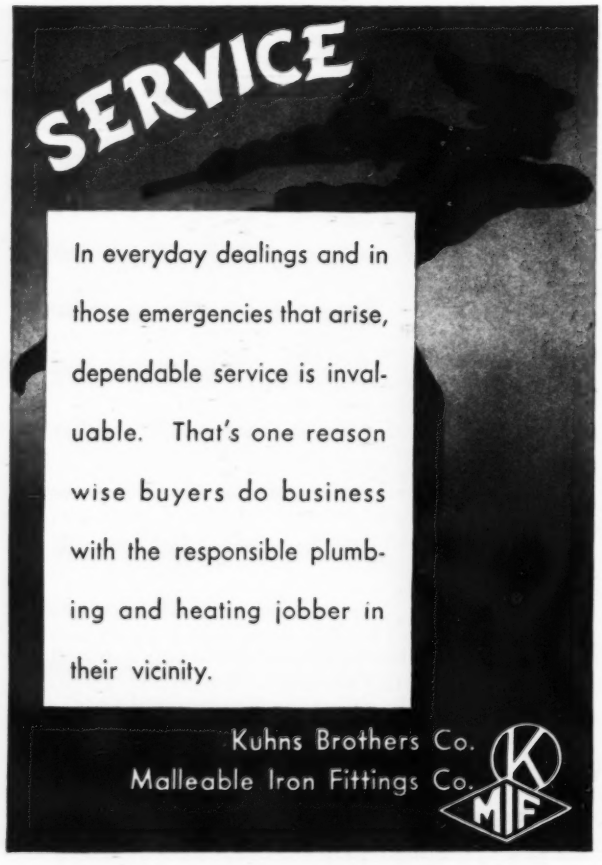
Two new folders recently issued by Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. deal with new electrodes and the new small welder recently announced by the company. The folder on the welder is a four page, 8½ by 11 in., two color, loose-leaf issue and contains the following information: general; application; specifications; dimensions and minimum operating costs. In connection with the latter there is included a chart which gives the power cost in cents per hour for operating the welder. The remainder of the folder is devoted to a description of the accessories, which are included in the purchase of the welder, and a list of questions and answers covering the general operation of the welder. The welding electrode folder is similar in appearance to the one first described. This catalog contains information on grades of electrodes, physical properties of weld metals, packing information, price lists and shipping information.

New Water Regulator Sheet

Penn Electric Switch Co., Goshen, Ind., has just issued a new loose-leaf sheet describing its series 240 water regulator. The front of the sheet has two cross-sectional drawings of the regulators and an illustration of the exterior of the regulator. The descriptive paragraphs beneath the drawings list and describe the features of the device. The reverse side of the sheet is entirely devoted to mounting specifications and capacity specifications with a column of miscellaneous items. The sheet is printed in two colors and measures 8½ by 11 in.

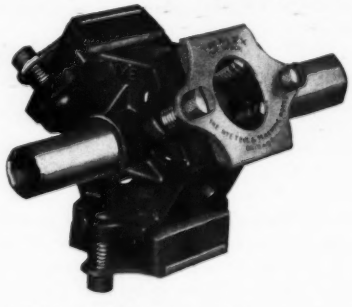
Why and How to Install Humidifiers

"Installation Instructions for the 'Steamist' Humidifier" and "The Automatic Moistener for Conditioning


SERVICE
In everyday dealings and in those emergencies that arise, dependable service is invaluable. That's one reason wise buyers do business with the responsible plumbing and heating jobber in their vicinity.
Kuhns Brothers Co.
Malleable Iron Fittings Co.
K
MIF

NYE TOOLS
"The Kind You Swear By and Never At"

NEW "TRIPLEX" STOCK



THE tool illustrated is presented in response to popular demand for a lightweight combination stock for use with solid dies.

Without sacrificing the durability of the stock, numerous openings have been provided, not only to prevent chip accumulation, but to allow the operator to apply oil freely on the pipe.

Furnished with Nye No. 1 skip-tooth solid dies in two combinations—⅜" to ¾" and ½" to 1".
Net Price complete, each.....$10.50

The NYE Tool & Machine Works
4120-30 Fullerton Avenue, Chicago, Ill., U. S. A.

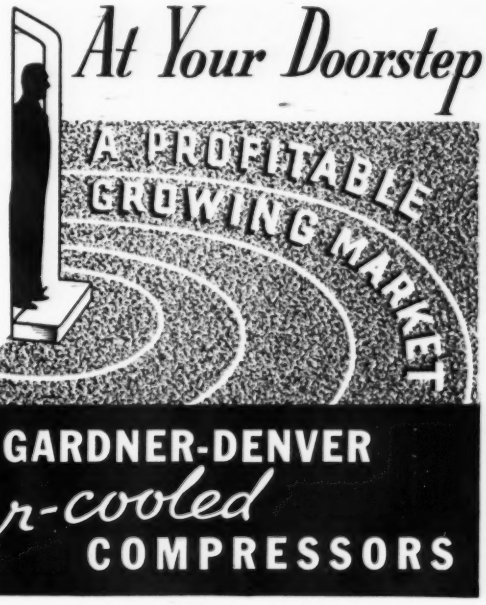
Winter Air" are the titles of two new pieces of literature just issued by Van Osdol Mfg. Co., 133 West Forty-sixth St., Indianapolis, Ind. The first of these booklets measures 8½ by 10¾ in. and contains 12 pages. It is divided into eight sections, each of which deals with a specific installation problem. The subjects to which the various sections are devoted are: first, the standard installation of the humidifier on warm air furnaces where hot water coil is not used; second, installation in furnace where a hot water coil is used; third, installation made through casing and feed section of furnace; fourth, installation on a completely water-jacketed boiler which does not have sufficient door frame extension to permit mounting as shown in the sixth method, (below); fifth, installation of drain plate under a radiator; sixth, installation on a hot water boiler where there is sufficient depth to the fire door frame; and sixth, installation on a completely water-jacketed boiler where the unit must of necessity be mounted on the fire door, permitting it to swing open freely and without obstructing passage. The second folder is an 8½ by 11 in., 12 page, well illustrated catalog, printed in two colors. The booklet explains why it is necessary to have the proper degree of humidification in the home if one is to enjoy the greatest possible comfort. The booklet then discusses the features of the company's humidifier and in a sectional view of the humidifier, each part is named. The last few pages are devoted to a section entitled, "Logical Questions and Their Explanatory Answers".

Air Conditioning Catalog

"More for Your Air Conditioning Dollar" is the title of a new 12 page catalog which Fitzgibbons Boiler Co., Inc., 101 Park Ave., New York City, has just issued. This folder is printed in three colors, measures 8½ by 11 in. and is profusely illustrated with photographs and drawings. The manufacturer's "split system" of air conditioning is described and a sectional view of a typical home shows one of the systems installed. The illustration indicates a possible arrangement of the heating system, with piping and radiators shown in black, the air conditioning supply ducts in orange, and the return ducts in green. Other illustrations show the units as they appear when actually installed in homes.

Turbine Pump Outfits for Farms and Homes

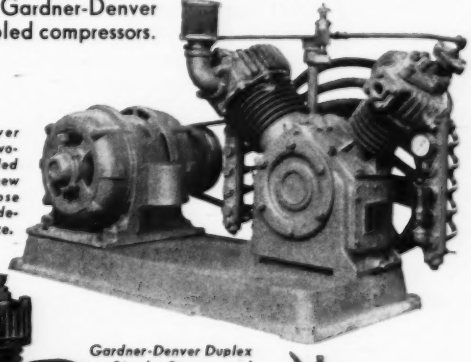
American Steam Pump Co., Battle Creek, Mich., has just issued a new four page folder describing its turbine pump outfits. The folder describes the adaptability of these outfits for installation in suburban homes, farms, tourist camps, schools and lake cottages. The folder illustrates the three models of the pump that are available and shows the alternate arrangements of mounting the motor and the pump on a cast-iron base with a flexible coupling or an overhanging motor close-coupled to the pump. The folder, designed to fit into a loose-leaf cover, is printed in two colors and measures 8½ by 11 in. Tables of complete sizes with capacity ratings and prices are given for both types of the three models. Included also are diagrams showing pipe connections between pumps and large tanks.



There's a growing demand for small, air-cooled compressors today—a demand that you can easily turn into profit when you sell the Gardner-Denver line. Here's why—

MORE VALUE for the user—Gardner-Denver higher efficiency means lower operating costs—quality features such as special alloy cylinders, extra large fin-type inter-coolers, and controlled lubrication assure smoother running—and lower maintenance.

MORE PROFITS for YOU—more profitable sales with Gardner-Denver's *complete* line of compressors—Gardner-Denver's reputation for high standards of manufacture makes selling easier and creates greater customer satisfaction. Write for complete information about Gardner-Denver air-cooled compressors.



Gardner-Denver ADR V-Type Two-Stage Air-Cooled Compressor...a new general purpose compressor for dependable service.

Gardner-Denver Duplex Single-Stage and Single-Cylinder Compressors are adapted to a variety of needs.

Since 1859

GARDNER-DENVER COMPANY, Quincy, Illinois

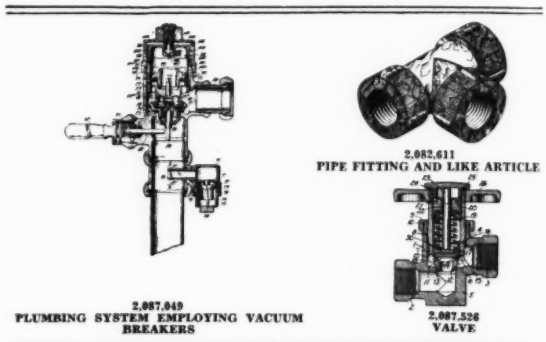
GARDNER-DENVER

REINFORCING THE
SALES APPEAL
The experienced appliance builder in the market for motors stresses these four points . . . . . 1, the product technically; 2, delivery service; 3, field service; 4, dealer acceptance.
According to an impartial survey conducted by a responsible outside agency, the Leland motor stands among the leaders on all four points. This is significant, because it means that the presence of Leland motors on your appliances will materially reinforce their sales appeal.
State your particular driving requirement and obtain the Leland recommendation.
THE LELAND ELECTRIC CO.
Canadian Address Toronto
Dayton, Ohio
Cable Address Lelect
LELAND

NEWS *of* PATENTS

Plumbing

2,087,049. Plumbing System Employing Vacuum Breakers. William C. Shanley, Chicago, Ill., assignor to The Imperial Brass Manufacturing Company, Chicago, Ill., a corporation of Illinois.

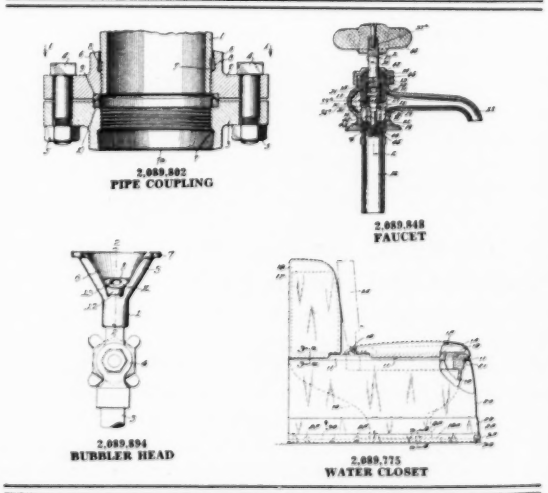


2,082,611. Pipe Fitting and Like Article. Frank H. Benge, Norristown, Pa., assignor to Continental-Diamond Fibre Company, Newark, Del., a corporation of Delaware.

2,087,526. Valve. Oscar B. Mueller and John E. Gray, Port Huron, Mich., assignors to Mueller Brass Co., Port Huron, Mich., a corporation of Michigan.

2,089,894. Bubbler Head. J. Way Harlan, Phoenix, Ariz.

2,089,802. Pipe Coupling. John F. Kirby, Somerville, N. J., assignor, by mesne assignments, to Reconstruction Finance Corporation, a corporation.



2,089,775. Water Closet. Clarence E. Wexelberg, Detroit, and Theodore C. Hobbs, Birmingham, Mich., assignors to Briggs Manufacturing Company, Detroit, Mich., a corporation of Michigan.

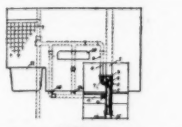
2,089,848. Faucet. John Hoferle, Chicago, Ill.

2,078,879. Fittings for Plumbing Systems. Edward W. Kaiser and James Edwin Quinn, Chicago, Ill.

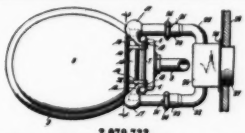
2,079,733. Ventilating Mechanism for Toilet Bowls. William C. Cummings, Deadwood, S. Dak.

2,080,601. Bathtub. Frank Cappuccio, Oakland, Calif.

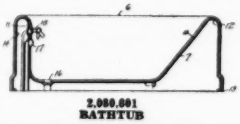
2,080,573. Sink and Counter Top Construction. Sern Madsen, Clinton, Iowa, assignor to George L. Curtis, Eugene J. Curtis and Charles A. Armstrong, all of Clinton, Iowa.



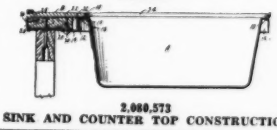
2,078,879
FITTINGS FOR PLUMBING SYSTEMS



2,079,733
VENTILATING MECHANISM FOR TOILET BOWLS



2,080,601
BATHTUB

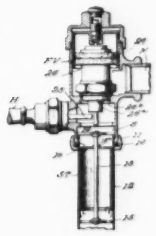


2,080,573
SINK AND COUNTER TOP CONSTRUCTION

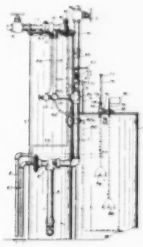
2,089,223. Quiet Flow Controlling Apparatus. Walker F. Peterson and Albert U. Walter, Baltimore, Md., assignors to Baltimore Valve Corporation, Baltimore, Md., a corporation of Maryland.

2,088,104. Water Softener. Arthur C. Zimmerman, Dayton, Ohio, assignor to The Duro Company, Dayton, Ohio, a corporation of Ohio.

2,089,176. Water Heating Apparatus. Edward T. Barron, Minneapolis, Minn.



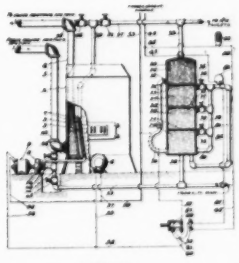
2,089,223
QUIET FLOW CONTROLLING APPARATUS



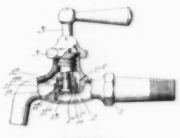
2,088,104
WATER SOFTENER

2,088,961. Branch Pipe Fitting and Method of Making Same. Leon W. Jordan, Louisville, Ky.

2,088,666. Faucet. Michael Portl, Los Angeles, Calif.



2,089,176
WATER HEATING APPARATUS



2,088,666
FAUCET

2,088,961
BRANCH PIPE FITTING AND METHOD OF MAKING THE SAME

Write for bulletins describing in detail the many unusual features of Kennedy Valves.

KENNEDY Valves have fully earned the frequently expressed preference for them because of their skillful sturdy design and their clean-cut accurate machine work. Made in all standard types and sizes.

The Kennedy Valve Mfg. Co., Elmira, N. Y.

KENNEDY
VALVES-PIPE FITTINGS-FIRE HYDRANTS
BUY KENNEDY PRODUCTS FROM YOUR LOCAL DEALER

works easily... wipes smoothly... sets slowly without addition of lead or tin

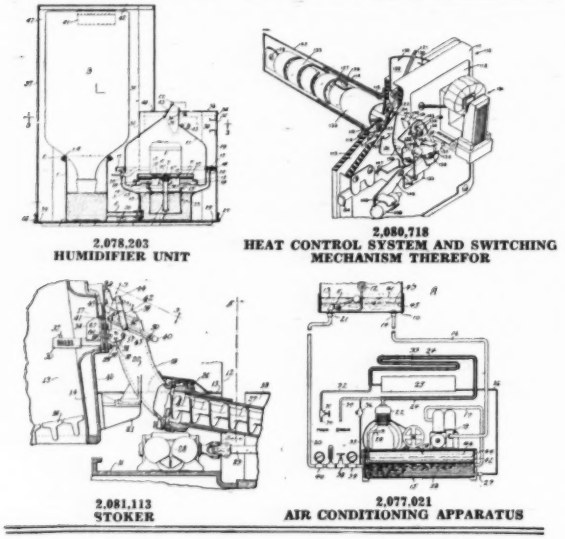
Eagle wiping solder

THE EAGLE-PICHER LEAD COMPANY
CHICAGO • JOPLIN • CINCINNATI

FOR YOUR PROTECTION this product is sold only through recognized plumbing supply jobbers—who in turn loyally support master plumbers.

2,078,203. Humidifier Unit. Fowler Manning, Bronxville, N. Y., assignor to Standard Air Conditioning, Inc., New York, N. Y., a corporation of New York.

2,080,718. Heat Control System and Switching Mechanism Therefor. Clifford Hotchkiss, Milwaukee, Wis., assignor to Minneapolis-Honeywell Regulator Company, Minneapolis, Minn., a corporation of Delaware.



2,078,203 HUMIDIFIER UNIT

2,080,718 HEAT CONTROL SYSTEM AND SWITCHING MECHANISM THEREFOR

2,081,113 STOKER

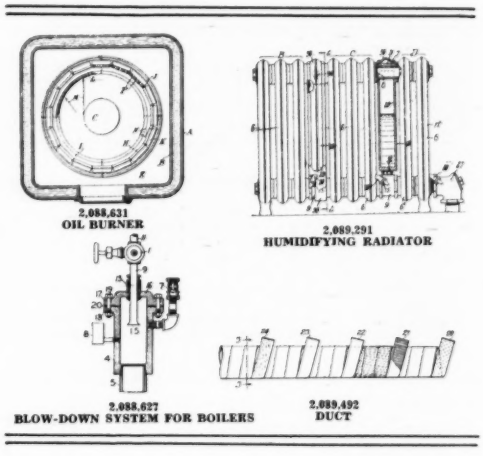
2,077,021 AIR CONDITIONING APPARATUS

2,081,113. Stoker. Howard P. Anderson, Erie, Pa., assignor, by mesne assignments, to The Standard Stoker Company, Inc., a corporation of Delaware.

2,077,021. Air Conditioning Apparatus. Robert L. Sites, South Orange, N. J., assignor, by mesne assignments, to Air Devices Corporation, Chicago, Ill., a corporation of Delaware.

2,088,627. Blow-Down System for Boilers. Harry H. Weeden, Drexel Hill, Pa.

2,088,631. Oil Burner. Oscar J. Appel, Paterson, N. J.



2,088,631 OIL BURNER

2,089,291 HUMIDIFYING RADIATOR

2,088,627 BLOW-DOWN SYSTEM FOR BOILERS

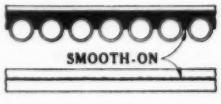
2,089,492 DUCT

2,089,291. Humidifying Radiator. Enoch E. Neal, Malden, Mass.

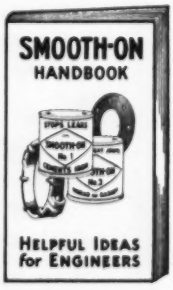
2,089,492. Duct. Robert D. Lambert, North Pelham, N. Y., assignor to American Radiator Company, New York, N. Y., a corporation of New Jersey.

TRANSFER OF HEAT IMPROVED WITH SMOOTH-ON

SMOOTH-ON being metallic is a good conductor of heat. Further, the expansion in hardening fills all voids between adjoining surfaces, enlarges the contact area, and increases the rate of transfer. Special fitting or machining as a means of improving the contact becomes unnecessary.



An intermediate filling of Smooth-On effects better heat transfer from one irregular heated surface to another and Smooth-On is applied cold. No preheating and subsequent shrinkage of parts is necessary for producing the tight contact.



Practical applications of Smooth-On for saving time, money and labor are described in the Smooth-On Handbook. Write for free copy, and get Smooth-On in 1 or 5-lb. can or larger keg from your supply house or direct from us.

SMOOTH-ON MFG. CO., Dept. 12
570 Communipaw Ave., Jersey City, N. J.

Do it with SMOOTH-ON

TRUPAR
"TRUFLO" Master Valve
WATER SOFTENER
Outstanding in Value and Performance

Users and dealers who have tested TRUPAR "TRUFLO" MASTER VALVE WATER SOFTENERS . . . have proven conclusively their superior value. The reason . . . "TRUFLO" MASTER VALVE'S simplicity of operation and the TRUPAR value throughout.

When you sell TRUPAR Water Softeners, Water Systems and Pumps, you find a ready, profitable market.

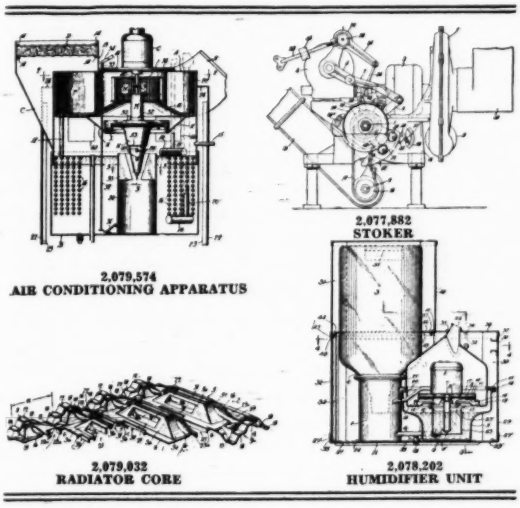
WRITE FOR CATALOG AND PROPOSITION AT ONCE

We'll rush full description of complete TRUPAR line along with prices, and other important facts.

TRUPAR INCORPORATED
440 LINDEN AVE., DAYTON, OHIO

2,079,574. **Air Conditioning Apparatus.** Edward S. Lea, Morrisville, Pa., assignor, by mesne assignments, to George Von Seebeck, New York, N. Y., trustee.

2,077,882. Stoker. Cortice H. Hall, Glen Rock, and Frederick Lee Hilder, Clifton, N. J., assignors, by mesne assignments, to Electric Furnace-Man, Inc., New York, N. Y.



2,079,574
AIR CONDITIONING APPARATUS

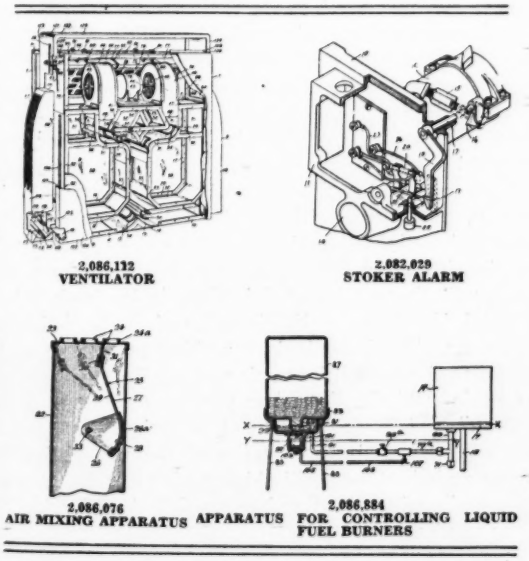
2,077,882
STOKER

2,079,032
RADIATOR CORE

2,078,202
HUMIDIFIER UNIT

2,079,032. Radiator Core. Fred M. Opitz, Milwaukee. Wis., assignor to Hexcel Radiator Company, Milwaukee, Wis.

2,078,202. Humidifier Unit. Fowler Manning, Bronxville, N. Y., assignor to Standard Air Conditioning, Inc., New York, N. Y., a corporation of New York.



2,086,112
VENTILATOR

2,082,029
STOKER ALARM

2,086,076
AIR MIXING APPARATUS

2,086,884
APPARATUS FOR CONTROLLING LIQUID FUEL BURNERS

2,086,112. Ventilator. George E. Atkins, Glen Ridge, N. J., assignor to Bell Telephone Laboratories, Incorporated, New York, N. Y., a corporation of New York.

2,082,029. Stoker Alarm. John Roland, Indianapolis, Ind., assignor to Schwitzer-Cummins Company, Indianapolis, Ind.

2,086,076. Air Mixing Apparatus. Bernhard Goerg, Mount Vernon, N. Y., assignor to American Radiator Company, New York, N. Y., a corporation of New Jersey.

2,086,884. Apparatus for Controlling Liquid Fuel Burners. Rallston M. Sherman, Glastonbury, Conn., assignor to The Silent Glow Oil Burner Corporation, Hartford, Conn.

...MAKE IT RING UP A PROFIT!

Many a call for service may mean a chance for an extra order

NOBODY ever got rich making service calls. Not much money in fixing a leak, burst pipe, or plugged drain. So after you've made your service call why not make it pay a profit—yours if you can sell a Whitehead Heater or Monel Hot Water Tank.

Use your opportunity. You've satisfied your customer. You've pleased him by relieving him of his trouble. He appreciates what you've done and respects your ability and judgment.

That's the time to point out that his hot water tank is rusting—apt to give way any time. So do him another good turn. Suggest replacing it with a Whitehead Monel Tank or Automatic Gas Storage Heater. He knows that a Whitehead tank of Monel never rusts, that it's hard and tough as bridge steel, and resists corrosion: For National Advertising is telling the story of Whitehead Heaters and Monel Tanks to millions of home owners—constantly, forcefully, month after month.

So many a customer will immediately agree that a new Whitehead Tank of durable, rust free Monel means life long satisfaction for him (and, of course, an extra profit for you).

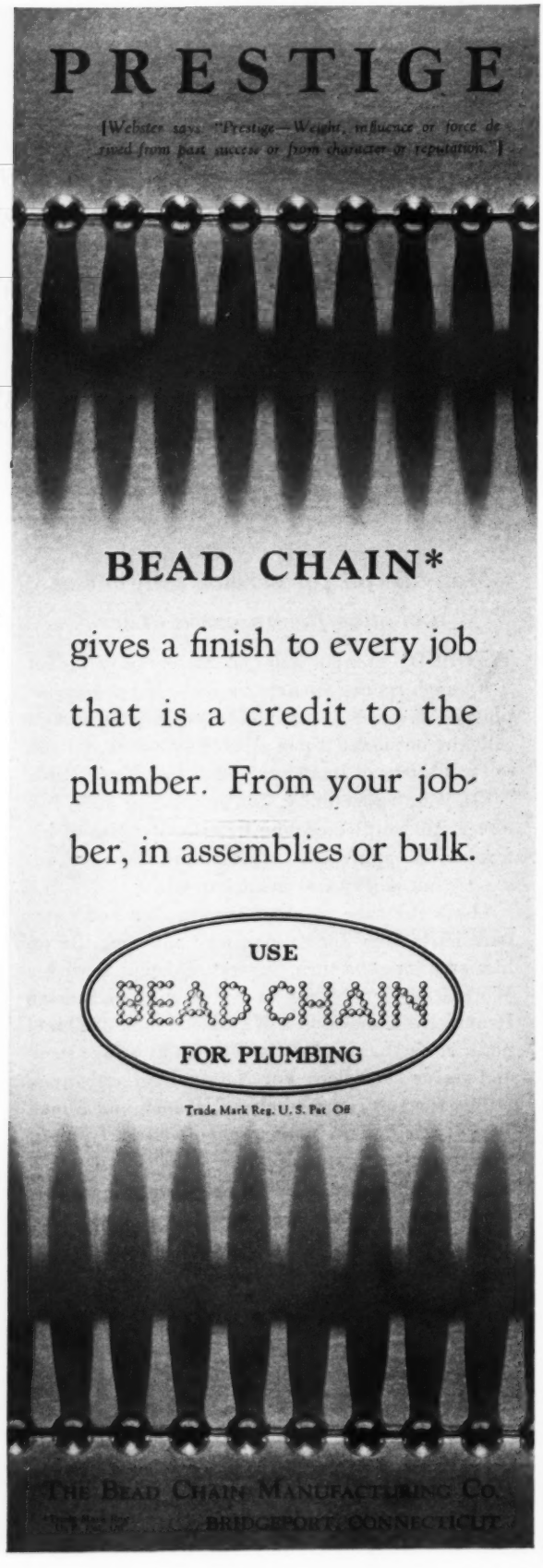
Why not call in the Whitehead man? Write for prices and discounts to:

Household Division

WHITEHEAD

METAL PRODUCTS CO. OF NEW YORK, INC.

304 Hudson Street **New York, N. Y.**


PRESTIGE
[Webster says: "Prestige—Weight, influence or force derived from past success or from character or reputation."]
BEAD CHAIN*
gives a finish to every job that is a credit to the plumber. From your jobber, in assemblies or bulk.
USE
BEAD CHAIN
FOR PLUMBING
Trade Mark Reg. U. S. Pat. Off.
THE BEAD CHAIN MANUFACTURING CO.
BRIDGEPORT, CONNECTICUT

Oil Burners—

(Continued from Page 110)

toward the gas flow and be located at or near the center of flow. To this tube is connected the necessary rubber tubing, strainer, and aspirator bulb. The analyzer, if cold, should be permitted to reach the temperature of the surrounding air in order to preclude errors in the results obtained. Before taking a sample the fire should be adjusted for cleanliness as this will lessen the accumulation of soot in the filter and prevent the greasing of the inside of the measuring burette, a condition which renders the reading difficult. Bear in mind that after any adjustment of air or oil, both a stack temperature reading and a CO_2 analysis must be taken. Some little time will be required before the temperature will reach a steady state following adjustment.

Before making an analysis considerable stack gas should be pumped through the burette and leveling bottle. This procedure will cause the water therein to become saturated with gas and makes for more accurate results. The technique of making rapid and accurate analyses is acquired readily and is quite simple. Several samples should be analyzed for any one setting and the results should agree within 0.2 per cent.

The average oil burner is capable of burning oil with relatively clean combustion at 10 per cent to 13 per cent of CO_2 depending upon the type of burner. Since good combustion is dependent upon air volume it follows that, unless the particular burner is intended to use natural draft secondary air, all air required must be supplied through the burner. Then and then only does the air and oil unite under predetermined conditions of turbulence. For example, a pressure atomizing type of burner (gun) may be capable of showing 10 per cent CO_2 without any objectionable soot deposition with proper installation. The same burner in a boiler with improper sealing could also be a soot generator with only 6 per cent or 7 per cent CO_2. Such a setting would naturally be quite unsatisfactory. These air leaks through boiler joints and settings should be located and stopped. Probably the simplest way of locating such leaks is by means of a candle flame. Joseph W. Hays in his book "How to Build Up Furnace Efficiency" makes the following statement: "If this book does nothing more than wake you up to the use of the torch and candle it will pay its weight in gold the first time you go over your boiler settings." While this statement is rather broad, it at least emphasizes the importance of the use of furnace cement and the Orsat will aid materially in determining when sealing is needed and measuring the effectiveness of the results.

ORSATS, STACK LOSS AND EFFICIENCY

To many, the foregoing may seem extremely elementary with little apparent "dope" for those that want practical information. Unfortunately, the simple things generally cause the most trouble and are the hardest to detect. Each individual owner of an oil burner is vitally interested in economy. The industry as a whole, should be and is, interested in customer satisfaction in that the best sales story ever told is the one told by Mr. and Mrs. Satisfied Public. The service man that adjusts the burner is the only one that can stack the cards. The finest de-

sign ever produced and the most comprehensive manual ever published won't save a plugged nickel from the fuel bill if the heat goes up the chimney just the same.

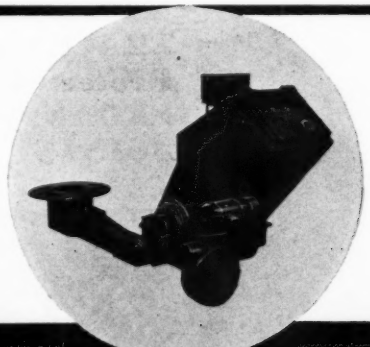
For those that want practical suggestions here is point number one. Most of the successful burners, regardless of type, are designed to supply the air for combustion in the amounts needed. By necessity, to handle their range, this volume is adjustable. If air is permitted to leak into the boiler setting, nothing but poor results can be expected. So, give the fire all the air that is required for obtaining the desired result but make sure that the air is under control and goes through the proper channels only. When this is done, clean fires with relatively high CO_2 readings will result. Study the service manual and trust in its author; his knowledge is based upon careful study and the odds are no doubt in his favor.

Point number two; commit this to memory: As more air is admitted to the fire three major things happen: CO_2 comes tumbling down, the stack temperature goes up and somebody is going to get into trouble.

To illustrate more fully the above condition a stack-loss diagram is reproduced in Fig. 1 in the form of a family of curves representing stack temperatures ranging from 300 deg. Fahr. to 1,000 deg. Fahr. The horizontal coordinate gives per cent CO_2 in flue gases while the right vertical ordinate represents percentage efficiency of heat utilization. This graph is true provided combustion is complete and will be found very handy in determining the meaning of the results obtained by the Orsat and stack thermometer.

It should be noted that all of the curves flatten out as the higher CO_2 is approached. Also note that the lower temperatures approach a straight line throughout the plotted range. Studying the curves one finds that with 7 per cent CO_2 and a 300 deg. Fahr. stack temperature the stack loss would be in the order of 15 per cent or an indirect efficiency of 85 per cent. Should we increase the CO_2 to 12 per cent and maintain a 300 deg. Fahr. stack temperature—which we cannot do without making some change in the heat absorption—the loss would become 12 per cent and the heat usefully recovered 88 per cent or an increase of 3 per cent, a saving hardly worth the effort. On the other hand let us see what happens with the other extreme of stack temperature. With 7 per cent CO_2 at 1,000 deg. Fahr. the loss is to the tune of 44 per cent giving 56 per cent recovered heat, an efficiency not to be tolerated. If, however, the CO_2 were 12 per cent with such a stack temperature the loss would be about 29 per cent with 71 per cent of the heat put to useful work. Actually if the CO_2 reading on any particular installation could be raised from 7 per cent to 12 per cent, the stack temperatre would be reduced considerably thus affecting an even greater saving.

What should one do when both CO_2 and stack temperatures are high? Assuming that the rate of combustion (gallons per hour) is not in excess of the requirements for the heating load there is just one answer: More heat must be absorbed. Proper application of baffles within the boiler passes often helps an overloaded boiler. Such baffles must lengthen the gas travel and reduce the cross sectional area of the flow thereby bringing more of the gas into intimate contact with the heat absorbing surfaces. Should this be found insufficient or impractical, sections may be added to the boiler.



STOKER DEALERS....

You'll Do Better

WITH

KŌL-MASTER

A PIONEER OF THE STOKER INDUSTRY AND STILL THE *Only* STOKER THAT IS OUTSTANDINGLY *Different!*

Made by a reliable company to be sold by dependable dealers

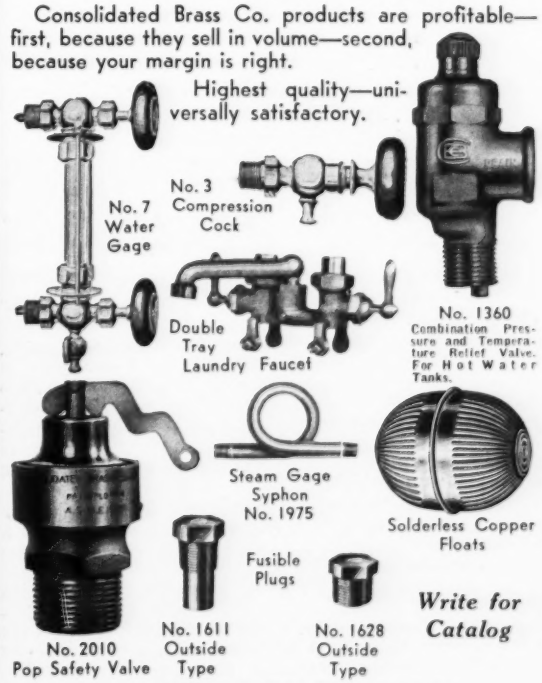
Inquire about a sales franchise — today!

KOL-MASTER CORP., Oregon, Ill.

Profitable Brass Goods

Consolidated Brass Co. products are profitable—first, because they sell in volume—second, because your margin is right.

Highest quality—universally satisfactory.


No. 7 Water Gage
No. 3 Compression Cock
Double Tray Laundry Faucet
No. 1360 Combination Pressure and Temperature Relief Valve. For Hot Water Tanks.
Steam Gage Syphon No. 1975
Solderless Copper Floats
Fusible Plugs
No. 2010 Pop Safety Valve
No. 1611 Outside Type
No. 1628 Outside Type

Write for Catalog

CONSOLIDATED BRASS CO.

138 Summit Avenue Detroit, Michigan

Plumbing Problems—

(Continued from Page 98)

isometric elevation of Fig. 3. As far as we can see, this layout is an excellent one. Fig. 1 is also an isometric elevation of the plumbing on the left side of the washroom. As seen in Fig. 1 this consists of a battery of five water closets and a battery of five lavatories.

A study of Fig. 1 shows that circuit venting is used, both for the toilets and for the lavatories.

On institutional work such as this, where batteries of fixtures are to be installed, and where vent chambers back of walls and partitions are provided, circuit and loop venting seems to be a better practice. Nevertheless, use of individual vents is entirely correct on such work as this.

When the soil or waste stack is at one end of the line, and the vent stack at the opposite end, as in the case of Fig. 1 circuit venting is used. When both stacks are at the same end, the horizontal vent line then required, loops back from the further end of the room, giving the name of loop venting to that method.

In the use of circuit and loop venting, two essentials are that only a moderate pitch be given the long horizontal soil and waste lines, and that these horizontals be installed with liberal sized pipe, for it should be recalled that in this type of venting, the horizontal line has to carry both waste and supply air for venting. Another essential is that the drainage fittings be laid flat, rather than having their branches pointing upward.

Because the horizontal must carry air in the upper part, it is necessary that this flow of air be obstructed as little as possible. When the drainage fittings are flat the obstruction is far less than when the branches point upward because waste entering the line through the branches will then form a sort of curtain at such entrances. E. J. T.'s elevations show the drainage fittings laid flat.

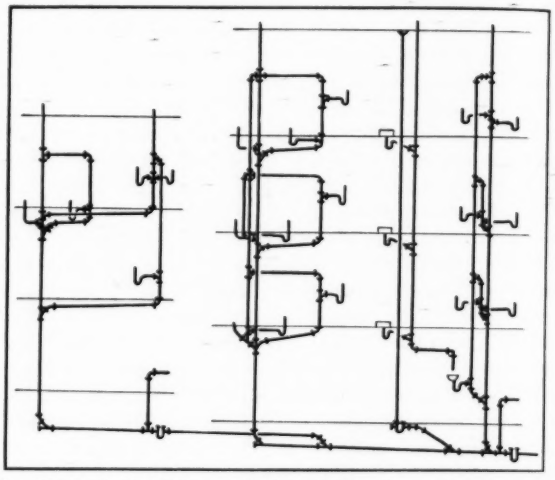
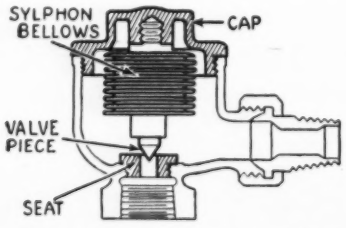


Fig. 11—E. C. C., Indiana, submits this drawing. There are several interesting features, such as the house drainage connections



THREE EASY WAYS TO STOP HEAT LOSS

If age or excessive pressures have reduced the effectiveness of Webster Thermostatic Traps, there are three ways to stop costly heat loss.

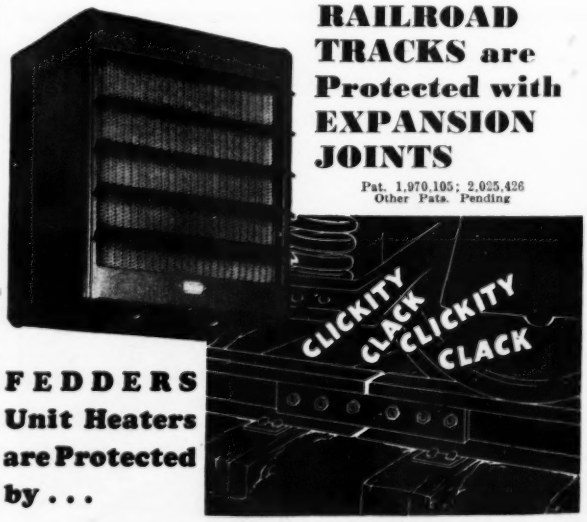
In METHOD NUMBER ONE, a new thermostatic assembly, including Sylphon Bellows (or diaphragm) and valve piece, is screwed into the original cap after the inoperative assembly has been removed. With this method, all work is done right on the job.

In METHOD NUMBER TWO, thermostatic assemblies attached to original caps and seats are returned to the Webster factory for re-conditioning. Each assembly tested under actual operating conditions. Less work on the job.

In METHOD NUMBER THREE, the purchase of a complete new unit, including bellows and valve piece assembled in a new cap, permits simple, rapid change-over with a minimum cost for installation.

Live heating contractors are profiting by selling Webster Trap Modernization Programs, selecting the method to fit the job. Before planning a trap modernization job, be sure to get the booklet "How to Get the Best Results from Your Radiator Traps." It is yours for the asking.

WARREN WEBSTER & CO., 1637 Federal St., Camden, N. J.
Pioneers of the Vacuum System of Steam Heating—Established 1888
Representatives in 60 principal U. S. Cities—Darling Bros., Ltd., Montreal, Canada



RAILROAD TRACKS are Protected with EXPANSION JOINTS

Pat. 1,970,105; 2,025,426
Other Pats. Pending

FEDDERS Unit Heaters are Protected by . . .

Full-Floating mountings which permit expansion of the heating element within the cabinet, and also protect it from torsional piping stresses. Tubes having 3 to 1 streamline ratio and individual convoluted fins allow each tube to "give" laterally, thus relieving differential expansion stresses within the element. Quieter operation and handsome, sturdy, uni-piece cabinets finished in brown with morocco-like texture make them adapted for commercial as well as industrial applications.

Write for Bulletin 572

FEDDERS
Manufacturing Co.
BUFFALO, N. Y.

The rising vent taken off the drainage line, is taken off between the last two fixtures on the line, rather than from the end. This allows the flush from the last fixture to wash out any accumulation at the foot of the vent line.

Fig. 1 shows the fixtures on one side of the washroom. The other side would be exactly the same but reversed.

Fig. 2 shows in isometric, the battery of urinals and the adjacent slop sink, seen at the rear of the washroom in Fig. 8. Here also, circuit venting is used. Circuit and loop venting are more in use in connection with water closets than with other fixtures, but their use in connection with batteries of urinals and lavatories is satisfactory practice.

We find that the original elevation of Fig. 2 is not in full agreement with Fig. 8. A comparison between the two drawings will show that the method of taking off the vent from the line of urinals at the left end of the line is not as shown in Fig. 8. Otherwise we think E. J. T. has submitted a fine layout.

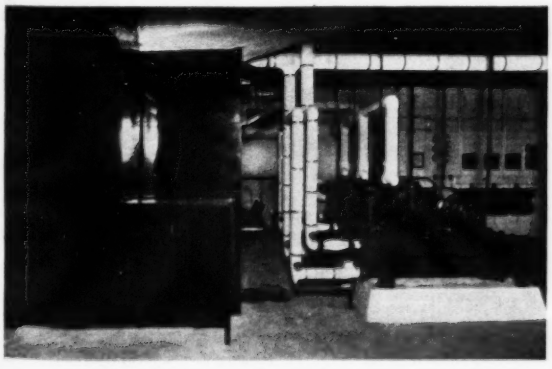
Fig. 9 shows the horizontal drainage lines in the basement. The comparatively short lines are accounted for by the grouping of several stacks, and also by the fact that, as shown in Figs. 1 and 2, the three main vent stacks do not return to the horizontal drainage lines in the basement, but are offset into the horizontal drainage lines at the first floor.

In discussing this problem it has been assumed that the lowest of the four toilet rooms is on the first floor, and not in the basement.

A. C. Office—

(Continued from Page 76)

cooling season is automatically controlled through switches actuated by means of a 3 point insertion thermostat in the chilled water tank, to maintain a constant water temperature in the tank of 48 deg. Fahr. The circulating pump is automatically placed in operation at



This is another view of the air conditioning equipment used. Cooling machinery and control equipment can be seen here

80 deg. Fahr., pumping chilled water during the actual cooling season.

FACTS OF INTEREST TO PLUMBERS!

NO MODERN PLUMBING REQUIRED! . . . AND NO MODERN CLEANSER EITHER FOR THIS 17TH CENTURY BATHTUB!

BUT... MODERN PORCELAIN ENAMEL IS *SMOOTH, LUSTROUS, BEAUTIFUL!* HARSH GRIT IN A CLEANSER CAN DAMAGE IT . . . USE SAFE OLD DUTCH!

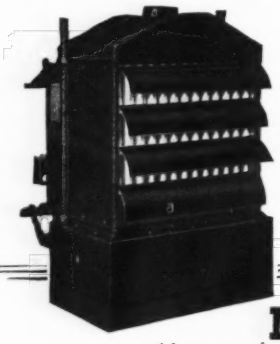
HERE'S *THE TEST* THAT *PROVES* THE SAFETY OF OLD DUTCH!

Sprinkle a little Old Dutch on the back of a plate, rub with a coin and listen. You'll hear no grinding or grating, because Old Dutch is free from harsh grit. Now make the same test with ordinary cleansers and notice the difference!

"We have recently made exhaustive tests with Old Dutch Cleanser. We recommend its use for cleaning the equipment and fixtures we sell."

"We do not hesitate to endorse Old Dutch Cleanser as a safe cleaning agent for porcelain enamel surfaces."

We are constantly receiving letters from plumbers, master plumbers and manufacturers who have made the test pictured above. In the interest of better care for the fixtures you install, the makers of OLD DUTCH invite *you* to make this test.



A NEW Source of PROFIT for YOU!

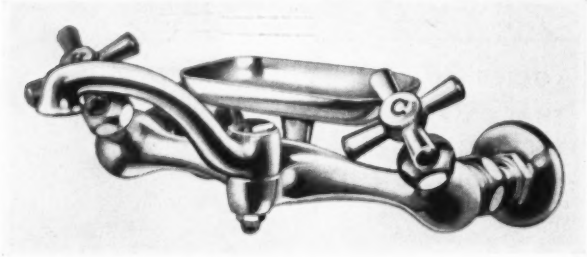
For use in:

- STORES
- GARAGES
- CHURCHES
- AUDITORIUMS
- BOWLING ALLEYS
- SERVICE STATIONS
- INDUSTRIAL BUILDINGS
- COMMERCIAL BUILDINGS

MANY of your most troublesome heating problems can be readily solved with the PITTSBURGH Gas-Fired Unit Heater. A COMPLETE unit IN ITSELF, this heater is easily suspended from the ceiling and takes up no valuable floor space. AUTOMATICALLY CONTROLLED and ECONOMICAL IN OPERATION. Burns either natural or manufactured gas. Eliminates cold spots in either large or small spaces. Write for descriptive circular.

AUTOMATIC GAS STEAM RADIATOR CO.
301 BRUSHTON AVE. PITTSBURGH, PA.
Also manufacturers of Gas-Steam Radiators for small rooms

The PITTSBURGH GAS FIRED UNIT HEATER



Smartcrafts Brighten Up the Kitchen

The raised swinging spout gets over the dishpan to please madam. It's a sleek lined beauty, heavily chromium plated to last a lifetime. The tilted handles add to its modern lines and are more convenient. It's Hays Quality right down to the renewable seats chromium plated for long wear. It's a leader that gets you into 90% of the homes of your trade and sells on sight.

Write for folder on Smartcrafts for the modern kitchen.

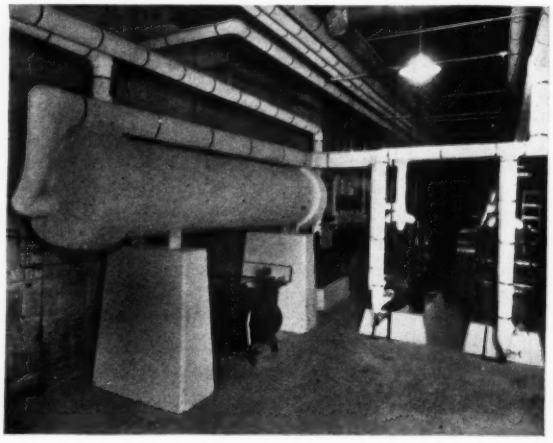
HAYS MFG. CO., ERIE, PA.

Manufacturer to Wholesaler to Plumber

HAYS

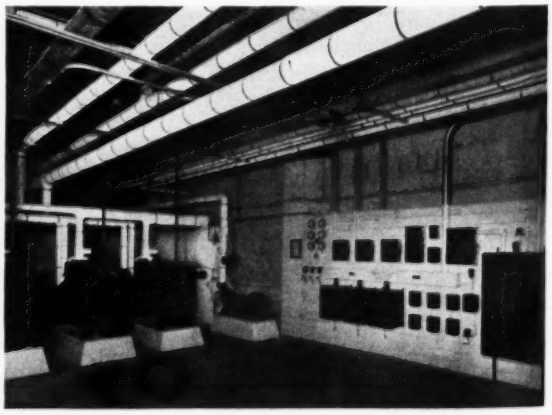
Plumbing Brass
Bath Fixtures
Copper Plumbing
Gas Service Goods
Water Service Goods
Iron Products
Tapping Machines

The humidity during heating season (65 deg. Fahr. and below) is controlled by means of the humidistats which are in the corridors. These humidistats operate a diaphragm valve in the hot water line connected to the sprays in each conditioning unit and maintain a variable humidity in accordance with the outdoor dry bulb temperature. The humidistats are reset automatically from the thermostats in the pent houses, reducing the



Shown here is a general view of the central plant equipment which is used in the new air conditioned building

maintained humidity as the temperature outdoors lowers and this prevents condensation from forming on the windows. The spray nozzle valves are automatically closed at 65 deg. Fahr. and above. A switch on the control board in the basement is provided to close the fresh air dampers in pent houses when all seven conditioning unit



The main switchboard which controls the system is shown in this illustration. Refrigerating equipment is at the left

fans are off. The fan motors are started and stopped from separate switches on the board.

This seemingly complicated system has operated perfectly through the extremely hot season, with very little attention on the part of the building engineer and practically no service. The cost of the zone control was proven to be thoroughly justified.

R.-P. Act—

(Continued from Page 83)

ment to the Clayton Act, it is alleged in the complaint.

Two answers in the Webb Crawford Company case have already been filed. The answer of the J. D. Johnson, Jr. Company says that this respondent has no knowledge of the allegations of the complaint except that it is a manufacturer of peanut butter with its principal place of business at Brundage, Alabama.

The respondent Morton Salt Company admits that the Webb Crawford Company has been in the business of buying groceries and selling the same wholesale to retail customers and that the Daniel Brokerage Company is engaged in the merchandising brokerage business, but that it is without further knowledge of the matters charged in the complaint except that this respondent is engaged in the sale of salt and sells salt to the Webb Crawford Company in which sales the Daniel Brokerage Company has acted as broker. It is further alleged in this answer that the respondent Morton Salt Company entered into a broker's contract with the Daniel Brokerage Company in August, 1936, which contract provided, among other things, that the broker represented that he was acting solely as the agent of the seller and not for or on behalf of any other party to the transaction. The broker, according to the contract as set forth in the answer, agrees that all the compensation he receives will be retained by him and no portion thereof will be in any way paid to the buyer. It is further agreed, the answer states, that the compensation paid by the seller is for the services of the broker in securing orders and that no part of the compensation is to be used in any way that would result in giving any buyer a lower price than that which any similar buyer would receive if he purchased salt direct from the seller. The answer also admits that the Daniel Brokerage Company was paid compensation for services rendered to this respondent seller by that concern; it is denied that this respondent ever paid to the Webb Crawford Company any brokerage fee in connection with any of its sales of salt. This respondent also denies that no services were rendered to it by said Daniel Brokerage Company.

The brief of counsel for the Federal Trade Commission in the matter of Standard Brands, Inc. has recently reached our attention. This case involves an alleged violation of Section 2 (a) of the Robinson-Patman Act by means of price discrimination. The first point argued in the brief for the Commission is devoted to establishing that the respondent Standard Brands Corporation in the transactions under scrutiny, is in interstate commerce. The distribution system of the company is set forth and it is pointed out that within 48 hours from the time of its manufacture, the yeast is made available to approximately 25,000 customers throughout the country from the six factories and 444 agencies owned and operated by the respondent. The yeast is shipped from the factory in 50 pound cartons and placed in the warehouses. From there the agencies put the same fifty pound cartons on trucks, and the customers whose requirements are over 50 pounds a day receive the yeast in the same 50 pound cartons. In all other cases the cartons are opened on the truck by the driver-salesman

YOU SELL
GENUINE COMFORT
WHEN YOU SELL
KELLY VALVES

TRADE MARK KELLY

When you sell the KELLY Line you sell more than air valves . . . You sell *comfort*. When you combine the superior features of the KELLY design with the desire closest to man's heart . . . the desire for comfort . . . you have an unbeatable combination. Their simplicity of design . . . their efficiency in operation . . . their lack of complicated mechanism . . . all contribute to their satisfactory performance. Your customers depend upon you for the best. You sell them the best when you sell them KELLY Valves. No matter how large or small the budget . . . no matter what the requirements may be . . . There is a KELLY Valve for every job. Write today for free literature describing the entire line in detail.

NATIONAL METAL PRODUCTS CORP.

15-21 N. Sheldon St. Chicago, Ill.

Eastern office and warehouse: Evins F. Glore Sales Corp., Grand Central Terminal Bldg., New York

HEALTH AUTHORITIES DEMAND PHILLIPS VALVES

America is demanding protection against foul gases and disease-carrying vermin which invade homes and buildings through dry drain traps. Plumbing codes from one end of the country to the other are specifying installation of automatic trap seal valves.

The public demand for protection against sewer menaces can mean new business to you. Stock the Phillips Valve and sell it aggressively.

YOU Profit

You sell the valve for $5 retail and get an installation job of from $5 to $15. Order sample valve and display poster now.

Phillips AUTOMATIC TRAP SEAL VALVE

PHILLIPS CORP., 806 S.W. Broadway, Portland, Oregon.

☐ Send me Display Poster.

☐ Send me _____ Phillips Valves at $3.50 each through _____ (*My plumbing wholesaler*)

My name _____

My address _____

as required. Counsel for the Commission are relying upon the class of decisions dealing with the stream of interstate commerce, beginning with the famous case of United States v. Swift. The brief points out that while the respondents contend that no binding contracts are made between them and their customers, nevertheless the evidence shows that the yeast is manufactured and shipped from the factories and agencies upon orders furnished by the traffic department estimating the total requirements based on sales for the past month. The brief goes on to say:

CONTENTS OF BRIEF

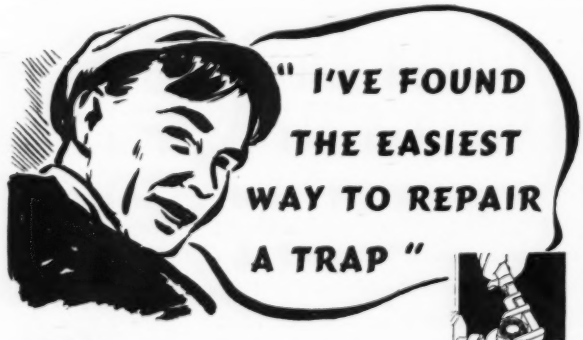
"While it is true that there are no binding commitments which do not permit a customer or the respondents to terminate their deal with one another at any time, yet every customer purchasing all of his requirements of yeast from the respondent and paying 23c per pound or less must agree to take the required amount to entitle him to buy the yeast at the price set forth in respondent's schedule."

The brief further points out that where customers have factories in more than one state the price paid for the yeast is based upon the total deliveries to these customers at all their factories. The use of respondent of national advertising, both by magazines and radio, is also relied upon in the brief as indicating that the sale and distribution of yeast by respondents is interstate in character.

On the question of discrimination in price, the brief sets forth the schedule of prices showing differentials in price ranging from 14c to 25c per pound depending upon the amount purchased per month, and said:

"The respondents offered no evidence to show that these differentials make only due allowance for difference in cost of manufacture, sale or delivery resulting from the differing methods or quantities in which such commodities are to such purchasers sold or delivered. Therefore the price schedule of the respondents is 'per se' discriminatory."

In discussing the question of whether the effect of this discrimination is such as to come within the Act, the brief of counsel for the Commission urges that the phrase "where the effect of such discrimination may be . . . to injure, destroy or prevent competition with any person who either grants or knowingly receives the benefit of such discrimination or with customers of either of them" specifically enlarges the categories of consequence which rendered price discriminations illegal under Section 2 of the old Act, which merely provided "where the effect . . . may be to substantially lessen competition or to tend to create a monopoly in any line of commerce." Under the new language the Commission argues, "if the effect of the discrimination in price brought about by respondents may be substantially to injure competition, such discrimination is a violation of the Act." The brief says that the respondents argued that since the differential between the favored customer and the others is too small per unit to reflect itself in the resale price of the finished product, that there can be no injury to competition between the favored customer and the others. The answer



Unscrew the cover

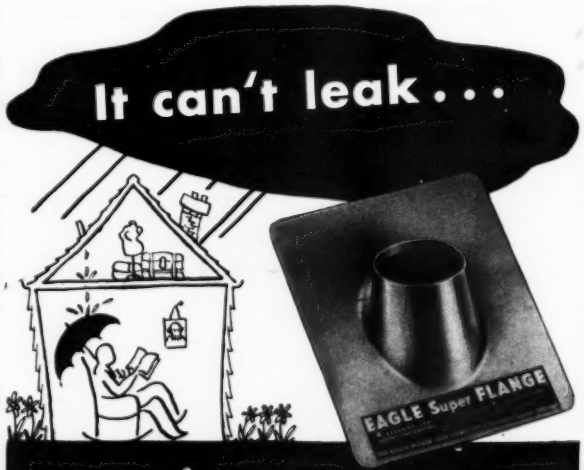
Take out old unit

Insert new cage unit

WHATEVER thermostatic traps you have—whatever their condition inside—the Barnes & Jones Cage Unit will bring them back to original, 100 per cent efficiency—at half the cost and one-tenth the bother of ordinary repairs.

Simply lift the old unit out of pratically any old trap and insert the B & J cage. No adjustments . . . no special tools . . . no delay. Time and costs are cut in half. A complete thermostatic operation unit in one piece, the cage unit carries its own valve piece, seat and plug. Tested and locked in adjustment at the factory, it is completely interchangeable, fool-proof, trouble-proof. Write for complete bulletin.

BARNES & JONES, *Incorporated*
410 Brookside Avenue Boston, Mass.



Eagle super roof flange

all one piece . . . all lead. Easier to install because it adjusts to any roof pitch.

THE EAGLE-PICHER LEAD COMPANY • CHICAGO • JOPLIN • CINCINNATI

FOR YOUR PROTECTION this product is sold only through recognized plumbing supply jobbers—who in turn loyally support master plumbers.

of the Commission in its brief is that in order to show injury to competition it is necessary to show (a) "employment of an unfair method not based upon efficiency and costs" and (b) "the securing of any material advantage in the competitive struggle as a direct consequence of employing such method of competition." The brief goes on to say:

"We submit to the Commission that if the effect of discriminatory prices may be to enable one enjoying such discrimination to obtain more business than would otherwise have been obtained that this should be held by the Commission to constitute an injury to competition. This kind of injury to competition may not cause or portend the failure of any competitor who is not receiving discriminate prices . . . yet we believe the Commission should hold it an injury to competition because the fact of discriminatory prices is to give one competitor . . . a material advantage over his competitors." And furthermore it is said:

"Now price is only one way or method by which business may be attracted from one competitor to another. It is not the only way. . . . Service may be just as important a factor in determining the allocation of business as price. . . . If one corporation can pay more for advertising . . . hire more intelligent and higher class personnel . . . put the product up in more attractive wrappers . . . furnish better delivery service to customers . . . have more attractively decorated and ventilated stores, such competition may well be able to take business away from competitors who cannot afford these advantages. But all of these advantages cost money. Where, therefore, a person receiving discriminatory prices achieves substantial economies in round figures, such savings will permit one competitor to do many things which will increase his competitive efficiency, (aside from cutting his price) the effect of which may well be to attract more business to him than would otherwise be possible but for the discriminatory prices and thereby cause the loss of business to his competitors."

NO IMPROVEMENT IN COMPETITIVE STRENGTH

The brief does not point out any specific instance in which the favored customers of the respondents have improved their competitive strength. Discussing this point, it is said:

"It would be impossible to determine in what specific way such savings were utilized. To require that it be shown in what specific way they were used would be an impossible task. Moreover, we believe it is not necessary to show in what specific way the savings achieved through the receipt of discriminatory prices is used to increase the competitive strength of a business. The language of Section 1 (a) . . . provides that if the effect of discriminatory prices 'may be' to injure competition such discriminatory prices may be eliminated. If, therefore, it be shown that the savings achieved as a consequence of discriminatory prices be substantial in round numbers, there is clearly more than a mere possibility that such savings would affect favorably a volume of business transacted by the concern receiving such discriminatory prices whether employed to reduce the price of the product or not. We contend that the effect of any substantial savings achieved as a consequence of

HYDRON
METALLIC BELLOWS
are used as
CONTROL ELEMENTS
in temperature- and pressure-control devices, and for liquid or gas seals of compressors and pumps. The hydraulic method of manufacture, from which the Hydron Metallic Bellows derives its name, results in a superior product which is repeatedly establishing unusual records of performance and service.
Write for our new catalog describing and explaining the advantages of the Hydron and containing complete engineering data from which to design all types of pressure and temperature controls.
CLIFFORD MFG. CO.
564 East First Street Boston, Mass.

Satisfy Customers • Build *Better* Business *with*...

Careycel

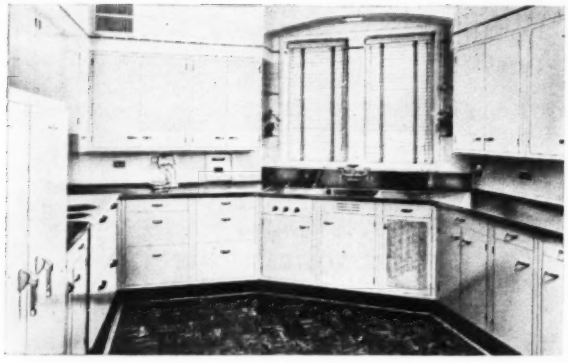
THE MODERN PIPE COVERING FOR LOW PRESSURE STEAM AND HOT WATER SYSTEMS

The rate of heat loss through CAREYCEL is 30% less than through an equal thickness of the air-cell type of insulation. CAREYCEL shrinkage is only 1/10th that of air-cell . . . unsightly, heat-wasting cracks at the joints are eliminated . . . a better looking job is assured.

Notwithstanding these exclusive advantages—conclusively proved by impartial tests at Mellon Institute—CAREYCEL sells in same price range as air-cell. Samples and convincing facts mailed upon request. See nearest Carey Distributor or write Dept. 18.

Note (below) smallness of air spaces in Careycel, as compared with ordinary aircell covering. The unique process of "Cellizing" the asbestos sheets makes possible the higher efficiency of Careycel.

THE PHILIP CAREY COMPANY
Dependable Products Since 1873
Lockland • Cincinnati, Ohio
BRANCHES IN PRINCIPAL CITIES



"So Much More Kitchen *for the* Money"

If you will compare the many exclusive features built into

ELKAY "Sturdibilt"
Stainless Steel Sinks and Tops

you will quickly see the EXTRA VALUE this outstanding modern equipment gives you. For example:

ELKAY uses 18 Gauge Stainless Steel, reinforced with a 14 gauge steel backing, making a total thickness of over 1/8 inch. Sink bowls are welded integral with drainboards, ground smooth, and polished—not soldered or lapped. There are no seams and no overlapping flanges.

These are just two of the many features which assure your customers the utmost in Service, Long Wear and Satisfaction.

FREE KITCHEN PLANNING SERVICE
ELKAY Engineers render expert Kitchen Planning Service to Plumbing Contractors. Send us your specifications and we will submit plans and estimates without cost or obligation.

ELKAY MANUFACTURING CO.
4727 ARTHINGTON STREET : : : CHICAGO, ILLINOIS

PENNSYLVANIA RANGE BOILERS

THE BASE OF THE JOB IS WORKMANSHIP

It starts with us in the building of boilers and ends with your installations. Match the workmanship you put into your job with that put into Pennsylvania Range Boilers and your work will be something for today's children to point out to their grandchildren.

All Welded, Riveted and Welded and Everdur Boilers in a Complete Range of Sizes. Also Boilers and Tanks of Special Shapes and Sizes Built to Order.

PENNSYLVANIA RANGE BOILER CO.
Established 1895
24th and Washington Ave. Philadelphia, Pa.

discriminatory prices 'may be' to enable a person receiving such discriminatory prices to attract business which would otherwise not be attracted, and that the attraction of such business, which must as a natural consequence entail loss to his competitors should be held by the Commission to constitute injury to competition with said other person."

The brief concludes by asking for an order from the Commission on the respondents to cease and desist from selling their bakers' yeast at the alleged discriminatory prices, but assents to the dismissal of the complaint insofar as it relates to the manufacture, sale and distribution of foil yeast because the discrimination in price there involved is so slight as not to come within the terms of the Act. Before any decision is handed down by the commission there will, of course, be a brief filed on behalf of the respondents.

COMMISSION—REPORT ON R-P CASES DISMISSED

It is of interest to know something about the disposition of certain matters that are brought to the attention of the Federal Trade Commission that do not get as far as a formal complaint. The Commission has recently issued a brief summary of 64 such cases. A letter was prepared by the Commission and transmitted to Congressman Patman by N. A. Ayres, the Chairman of the Commission, explaining the Commission's procedure. The letter says:

"Under the Commission's procedure, anyone may bring to its attention an alleged violation of any of the laws in which the Commission has jurisdiction. Preferably, such information should be in writing, and should contain a clear statement of the facts. This information is kept confidential. This is known as an informal complaint and is referred to a member of the Chief Examiner's Division for an independent investigation of the material facts. It is important to know that in this type of investigation, the party complained against is also interviewed and given an opportunity to make explanation regarding his alleged violation of law.

"If upon the facts disclosed by the Commission's investigation, it appears there is reasonable grounds to believe that the law is being violated, the Commission issues a formal complaint setting forth in detail the charges involved in the case. The respondent named in the complaint is given a reasonable time in which to make answer. If he denies the charges contained in the complaint, evidence is taken both for the Government and respondent before a trial examiner who, like a master in chancery, makes a report to the Commission on the evidence taken in the case. Thereafter, briefs may be filed and the case orally argued before the Commission before decision. Generally speaking, the procedure is very similar to that ordinarily followed in the courts. If the Commission finds that the law has been violated, it issues an order requiring the respondent to cease and desist from the illegal practices. If the respondent still believes that he is not guilty of a law violation, he has the right to appeal to his local circuit court of appeals, where the Commission's order is reviewed, and which court may either sustain, modify, or void the Commission's order. There is a further appeal by certiorari to the United States Supreme Court, and in many important case the Court has reviewed such decisions.

"As stated in your letter, the Commission has undertaken to assist those who are affected by the Robinson-Patman Act, and in this connection members of the Commission and its staff have held conferences with hundreds of individuals seeking an understanding of the Act as it effects their business. Additionally, many thousands of responsive letters have been prepared in response to inquiries. The Commission can advise you with assurance that as a result of such efforts large numbers of businessmen and in several instances whole industries have revised their practices to comply with the letter and spirit of the act. Particularly has this occurred in the food, drug, paint, calendar, and canning industries.

"You are at liberty to make such use of the information contained herein as you desire.

Cordially yours,
W. A. AYRES, Chairman."

The following cases in this summary show why no action was taken by the Commission:

Sales of radio tubes below cost of manufacture to eliminate competitors and discrimination in services and facilities was charged. The facts were not developed because preliminary inquiries disclosed private litigation in which the party charged was being sued for $15,000,000 triple damages under the Robinson-Patman Act which suit involved the same issues. Hence the file was closed.

Party was charged with selling two loaves of bread for price of one in local competitive areas in two states and not doing so elsewhere. The evidence showed that practice complained of was begun to meet competitive practices of other bakers and was discontinued when such practices stopped. Hence the file was closed.

A refiner was charged with selling beet sugar to retailers in one city at $5.08 and in another city 65 miles distant at $5.03. It claimed competitive conditions in the latter city account for the small differential, and no evidence to the contrary was obtainable. As between customers in each of the cities named there was no price discrimination. For these reasons, and because of an apparent lack of interstate commerce, the file was closed.

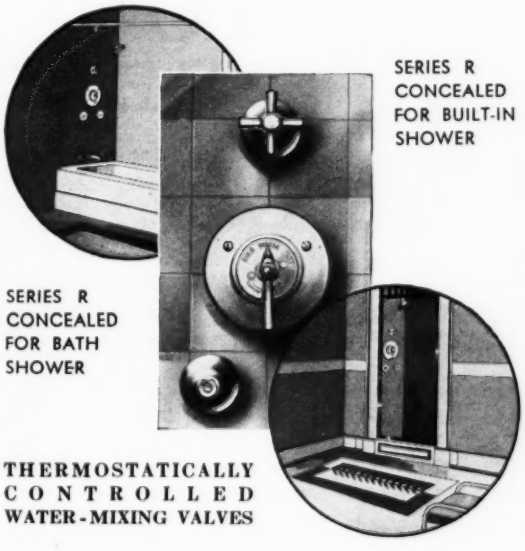
QUANTITY DISCOUNTS

Quantity discounts complained of were applied to aggregate net purchases of chocolate bars made during a period of six months. They were on a graduated scale, ranging from 1 per cent on purchases of $2,500 to 5 per cent on purchases of $37,500 and over. Evidence disclosed that these discounts were effective for a period of only ten days. Subsequently, all customers paid the same base price less a promotive discount of 5 per cent, which was given to all, and a quantity discount of 2 per cent on carload or truckload purchases.

The file was closed because the 2 per cent differential to carload or truckload buyers is justified by the difference in cost of selling, handling, and shipping.

A number of handbag manufacturers acceded to the demand of a department store for an 8 per cent discount from their respective list prices instead of the customary 3 per cent discount at which they sold to other customers. Sales to the said department store by all manufacturers

For SAFETY *in the home* SHOWER



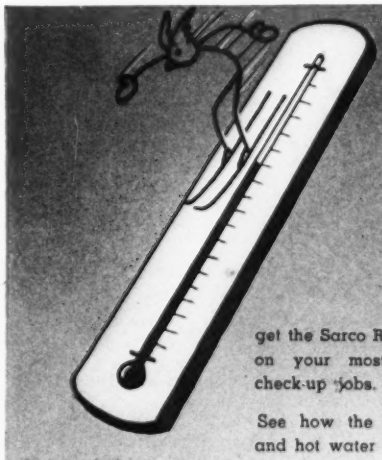
SERIES R CONCEALED FOR BUILT-IN SHOWER

SERIES R CONCEALED FOR BATH SHOWER

THERMOSTATICALLY CONTROLLED WATER-MIXING VALVES

LEONARD VALVES

MANUFACTURED BY
LEONARD-ROOKE COMPANY, INC.
1360 Elmwood Avenue, Cranston, R. I.



BEFORE MERCURY STARTS TO SLIDE

get the Sarco Representative to work on your most important heating check-up jobs.

See how the latest Sarco heating and hot water controls can increase your service and your billings. Find out about Sarco "Prestige" valves and traps, and see what Sarco Adapters have done on other replacement jobs in your vicinity.

Sarco Products will increase *and* insure your profits. *Now* is the time to find out why.

GET THIS NEW DATA BOOK— with hook-ups, and calculation data for all types of heating, air conditioning, process equipment, and hot water control.

STEAM HOOK UPS
SARCO

SARCO

REPRESENTATIVES IN ALL PRINCIPAL CITIES

THERMOSTATIC, FLOAT AND BUCKET TRAPS, REGULATORS AND HEATING SPECIALTIES

SARCO COMPANY, Inc., 183 MADISON AVENUE, NEW YORK, N. Y.

18-A

involved, except one, were intrastate. Although figures showing complete analyses of costs were not available, there was much to indicate that through economies in materials, styling, and selling, the single manufacturer making interstate sales to the department store in question effected savings in such sales which were commensurate with the discount differential.

Under the circumstances the file was closed because there were not sufficient indications that the differential was unlawful to justify the unusual expenditure of time and money which would have been necessary fully to determine whether or not there had been an unjustified price discrimination.

PRICE DISCRIMINATION CHARGED

A wholesaler of fruits, vegetables, and other merchandise was charged with unlawful price discrimination and with selling below cost which was alleged to have lessened competition.

The investigation completely disproved the selling below cost charge. With respect to the price discrimination charge, the evidence disclosed that the wholesaler had entered into contracts with the members of an association of retail grocers under which, for certain merchandising cooperation, a "service payment" of 4 per cent was allowed members on certain merchandise, not including fruits and vegetables. No sales are made by the wholesaler outside of the State in which he is located; in fact, the business is confined to a comparatively small town and the nearby trading area. In view of the absence of interstate commerce the file was closed.

The maximum quantity discounts on wooden ice cream spoons were given to chain national dairy products companies and to their subsidiaries, whether or not they bought in the quantities to which the maximum discounts were applicable in purchases by others.

After discount, prices were as high as or higher than those of competing products. Effect of the discounts upon costs and profits of buyers in the sale of dairy products was very small.

In November, 1936, all special discounts were abandoned, and quantity discounts made equally applicable to all.

For these reasons the file was closed.

Company charged is one of a group of manufacturers alleged to have discriminated in prices on glazed tile as between tile contractors and tile wholesalers.

The file was closed because the investigation disclosed that the company had not discriminated in prices between different classes of purchasers.

It was charged that a manufacturer discriminated in price among competing customers. The record indicates that one purchaser, taking advantage of a notice of price increase from $3.20, purchased large quantities prior to the rise. The other purchasers continued to buy for current sales in a rising market which, at the time of complaint, was $4.85.

There was no evidence of price discrimination, the ability to resell at the lower price being based on purchases at former lower prices which were available to all customers; hence the file was closed.

THE Blade to CUT Pipe Tubing Angles

WITH
EASY-STARTING TEETH
A quick clean start. No slipping off the cutting line. A smoother finish. Longer wear.

MILFORD FLEXIBLE
The Blade with Easy-Starting Teeth

MILFORD FLEXIBLE is the plumber's blade. Tough and safe, and cannot be broken in a frame.

Ask your jobber for
MILFORD FLEXIBLE

THE HENRY G. THOMPSON & SON CO.
NEW HAVEN, CONNECTICUT
Saw Makers for over Half a Century

YOU NEED this BOOK

NO MAN interested in forced air heating or air conditioning can afford to be without JONES' ESTIMATING TABLES. This book makes the figuring of forced air heating and air conditioning requirements simple, clear and absolutely certain and eliminates all chance of error or omission. Saves time and effort. Four sets of tables cover every possible condition . . . everything which may have an effect on heating and air conditioning. Can be utilized on ANY system using ducts. Beautifully bound, this book consists of 68 pages, size 6x9. Get your copy. Send your order and your check today. If you are not satisfied, return the book and your money will be refunded. Formerly priced at $2.00 this book has been reduced to... $1.00

DOMESTIC ENGINEERING COMPANY
1900 PRAIRIE AVENUE, CHICAGO, ILLINOIS

GET OUR FREE BOOK FOLDER

Your copy of our new free book folder describing thirty-nine outstanding books is waiting for you. Be sure to write for it without delay. No cost. No obligation.

Price Campaign—

(Continued from Page 71)

brought out by Fig. 4, a comparison of plumbing and heating prices with the prices of other building materials. With 70 per cent of today's market for plumbing and heating materials in remodeling and modernizing and only 30 per cent in new building, it is essential that plumbing and heating prices be dissociated from prices of building materials in general. Price rises in other building materials should not be allowed to discourage modernization programs in the field of our own industry. Especially interesting in this connection is the fact that structural steel, a non-essential to most remodeling jobs, has risen most rapidly; and paint and paint products, a necessary, even if minor, adjunct to practically all remodeling, is next lowest to plumbing and heating materials.

Another very interesting and convincing presentation of these price comparisons may be made on the basis of the purchasing power of the dollar today as compared with the dollar of 1926. An example will make the derivation of these figures clear. If the price of some commodity now stands at 50 per cent of its 1926 level, it is clear that a dollar now will buy just twice as much of that commodity as it would have in 1926; in other words, one dollar now will buy as much as two dollars in 1926. This fact is usually expressed by saying that in relation to that commodity today's dollar stands at two dollars in terms of 1926 levels.

Such a comparison shows that the dollar which would purchase just 100 cents worth of plumbing and heating materials in 1926 will now purchase $1.27 worth, whereas it will purchase only $1.07 worth of automobile, $1.15 worth of furniture, $1.12 worth of clothing, and only $0.94 worth of leather products. A graphic presentation of the purchasing power of the consumer's dollar in some of the more familiar consumer's goods is given in Fig. 4.

It must be remembered in this connection that these comparisons take no account of the tremendous gain in the general value of plumbing and heating materials since 1926. From the standpoint of utility, durability and beauty, the fixtures and fittings of 1937 are incomparably better than those of 1926. All of this is added value. If there were any way of calculating what the fixtures of today would have brought in the 1926 market, the purchasing power of today's dollar undoubtedly would be set at a much higher figure.

These facts should be sufficient to convince even the most skeptical that plumbing and heating prices are not high by any standard. It remains, therefore, for manufacturers, wholesalers and contractor-dealers everywhere to continue the campaign to bring these facts to widespread public attention. No legitimate channel of publicity should be neglected in this effort. Among the effective means of broadcasting these facts of plumbing and heating prices are:

1. Show room and show window displays
2. Stickers which may be placed on all customer correspondence
3. Advertisements for insertion in your local newspaper
4. News items for local newspaper release

TANKLESS WATER HEATER
by GERSTEIN & COOPER
for Automatically Fired Systems

This Highly Efficient G & C Water Heater will deliver 360 gallons of hot water per hour. It is ruggedly constructed to give years of service without expense. Domestic Water Shell is heavy gauge copper, electrically welded and thoroughly insulated with mineral wool. Copper tubing is silver-brazed to bronze headers with no threaded or ground joints to leak. Jacket is lead-coated steel, attractively finished in Duco.

Available to the trade only through recognized distributors.

Write today for complete details about distributor franchise.

GERSTEIN & COOPER COMPANY
SO. BOSTON, Massachusetts

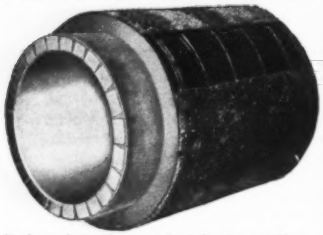
Made for Long Rugged Service

Boiler Tube Cleaners, Flue Brushes, Wire Heater Brushes, Handy Cleaner Brushes, Fire Brooms, Track Brooms.

Tempered Steel
The Worcester line is complete.
Catalog gladly sent upon request.

WORCESTER BRUSH and SCRAPER CO.
10 AUSTIN STREET WORCESTER, MASS.

EVERLASTING



Wyckoff's Redwood Steam Pipe Casings are the perfect insulation for underground steam or hot water lines; the perfect frost-proofing for exposed pipes.

2", 3", and 4" thicknesses—Sizes 2" and up. Lengths to 12 feet. Practically indestructible, with low heat transfer factor. Cannot rot, shrink, swell, warp or leak. Unaffected by worms, ants and termites. Tenon and socket joints. Tin lined for steam pressures over five pounds. Ship from stock.

Redwood is the greatest heat resisting wood known.

Wyckoff Steam Pipe Casings are products of 82 years' experience, increasingly in favor with Architects, Engineers and Contractors.

Write for details of this and other Wyckoff Piping for water supply lines, chemical lines, sewage lines, mines, fume stacks, etc.

A. WYCKOFF & SON CO., Home St., Elmira, N.Y.

·WARNOCK·

Triple Wear Wrenches

The Warnock wrench is easy to adjust. The strap is arranged in such a way that it can be drawn absolutely tight in *one* movement. Notice, too, that this strap is triple folded at the point of greatest strain.

For chrome, brass and nickel plated pipe

WARNOCK MFG. CO., Worcester, Mass.

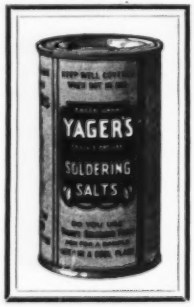
"Why Should I Buy Reichert Floats?"

Because the patented seam and spud construction makes Reichert Solderless Heavy Gauge Sheet Copper Floats the strongest on the market. Thoroughly inspected, tested and guaranteed leakproof. Write for folders on the entire line of floats and rubber tank balls.

The Reichert Float & Mfg. Co.

2238 Smead Ave. **Toledo, Ohio**

HEAD WORK MAKES



BETTER LEAD WORK

Make a practice of using YAGER'S Soldering Salts on all your soldering jobs. For the best results use only the best materials. Use YAGER'S, it saves time, effort, and solder. It's simply a matter of good judgment, that's why we say HEAD WORK MAKES BETTER LEAD WORK.

ALEX. R. BENSON CO., INC.
HUDSON, NEW YORK

List of distributors in McRae's Blue Book. Sales agency for Canada: CANADIAN GENERAL ELECTRIC CO., Toronto, Montreal.

The show room and show window display illustrated in these pages is designed to present the facts of plumbing and heating prices at a glance. In addition it gives the authority upon which the facts are based, the Department of Labor, and suggests the wisdom of buying immediately before prices rise. The sticker, which carries the same message, should be placed on all correspondence, invoices, quotations, etc.

Those in the industry who have standing arrangements for newspaper advertising space will see the wisdom of devoting a share of that space to impressing the facts of plumbing prices upon the public. As an aid to such advertisers there is reproduced in these pages a display ad carrying the "prices are lower" message and a paragraph of text. The following is a suggested paragraph:

Remodel now! Prices for plumbing and heating materials according to Department of Labor figures are 21.3 per cent lower than in 1926, 16.3 per cent lower than in 1929, 8.5 per cent lower than the present average for all commodities, and 18.2 per cent lower than the average for all building materials together. For twelve years plumbing and heating materials have been improved steadily in reliability, durability and beauty, yet the present price is 3.4 per cent *below* the average for these twelve years. Take advantage of these remarkably low prices to do your building and modernizing now before prices rise.

The following news item has been prepared by the Plumbing and Heating Industries' Bureau for use in local newspapers:

"While the home building dollar today buys 15 per cent more plumbing than in 1929 and 21 per cent more than in 1926, the outstanding difference is not in price but in the greater beauty, durability, and improved performance of modern plumbing equipment," according to .....

After calling attention to the fact that statistics of the United States Department of Labor show that plumbing fixtures today are selling for 10 per cent less than the average price for the last twelve years, Mr..... ..... added:

"Significant as these figures are to the prospective builder or modernizer, they leave untold the story of the remarkable strides made by the plumbing industry in improving every item entering into a complete plumbing installation.

WHY
Limit Your Earnings TO ONE SHORT SEASON?

There is nothing seasonal about the ADJUSTO Direct Water Heater. Many unique features make it A YEAR-AROUND profit earner for you. There are more than 2,000,000 prospects for ADJUSTO in the U. S.

Write for Illustrated Folder

RADIATOR SPECIALTY CO.
CHARLOTTE, N. C.

ADJUSTO DIRECT WATER HEATER AND BOOSTER

"The glamorous beauty of the modern bathroom, the streamlined efficiency of the cabinet sink with its lustrous surface of porcelain enamel fused on rigid cast iron, the durability and trouble-free performance of the pipe, valves, and fittings concealed under the walls and floor of the house, these and many other advances in styling and functional utility, tell the real story of the progress the industry has made in giving more and better plumbing for the 1937 dollar."

The contrast between the heating equipment of today and ten years ago is just as dramatic with a substantial price differential in favor of the 1937 buyer, Mr. ..... points out.

"Prices of certain staple kinds of boilers have declined 53 per cent in the last 17 years while radiator prices have dropped nearly 50 per cent.

"At the same time, the contrast between what the consumer is getting today and what he purchased 17 years ago is as striking as the contrast between the modern streamlined automobile and the Model T.

"Whereas 17 years ago the choice of the homeowner was limited to the round boiler, today there is a special high efficiency boiler available for every type of fuel.

"Thoroughly insulated, enclosed in a handsome colorful steel jacket, with a long flue travel, and with baffles to trap the gases of combustion, the modern boiler offers unprecedented fuel economy.

"Similarly, 17 years ago the choice of the homeowner was limited to a standard type of radiator, which, although efficient as a disseminator of heat, yet could boast neither beauty nor tasteful design. Artists-engineers took the radiator in hand and gave it graceful, slender tubes harmonizing with the finest furniture. Other types of radiators were developed suitable for complete concealment or partial recessing in the walls.

"In addition there has been introduced in recent years a wealth of special devices and controls tending to make steam and hot water heating fully automatic, highly flexible, and instantly responsive to the heating needs of the home.

"No less significant is the introduction of winter air conditioning equipment made especially for use with steam and hot water heating.

"Thus from every point of view—price, performance, appearance, economy, and efficiency—steam and hot water heating equipment today offers values that have never been equaled in the history of the industry.

"Price is a factor in any purchase, of course. But the

ALL ABOARD
FOR PROFITOWN!
Rapid extension of rural electrification is booming sales of Deming Pumps and Water Systems. All types and sizes meet all shallow and deep well requirements. Write for *free* catalog and dealer information. THE DEMING COMPANY, SALEM, OHIO.
Deming
HAND AND POWER PUMPS FOR ALL USES

THEY'RE A VITAL PART of the PICTURE
When selling a complete new bathroom or when remodeling old ones, remember . . . SHERWOOD Ball Cocks are a vital part of the picture. Wherever installed they add that final touch so necessary to a fully satisfactory bathroom job. Don't take chances . . . install SHERWOOD Ball Cocks and take a profit.

SHERWOOD BRASS WORKS
6331 E. JEFFERSON, DETROIT
SHERWOOD Ball Cocks

Cut Perfect Threads—
Get Tighter Joints!
Use Sulflo on your next threading job. Save time and tools. Do a better job in half the time. Ask your supply house or write for Bulletin No. 3.
Sulflo
Sulphur that flows
Sulflo Corporation of America
705 Spring St.
Elizabeth, N. J.

THE MODERN CUTTING OIL
Sulflo Pipe Joint Compound—Sulflo Soldering Paste

SCOTT S/N NEWCOMB
THE LINE THAT
has everything!
Scott-Newcomb dealers are making money because S/N has a product for every month of the year—and the Scott-Newcomb line of automatic heating and air conditioning equipment means HIGHEST QUALITY and a well known name at competitive prices.
Scott-Newcomb manufactures the following equipment:
Air Conditioners (Oil, Gas, Stoker)
Boilers, Cast Iron, Steel (Oil, Gas, Stoker)
Oil Burners (8 sizes)
Water Heaters (Oil, Gas, Stoker)
Room Coolers and Central Cooling Units
Stokers (5 Sizes for Hard and Soft Coal)
Water Softeners (All Sizes)
Your territory may be open for the popular S/N line. Write today for literature and interesting dealer offer.
SCOTT-NEWCOMB, INC., 1923 Pine Street, ST. LOUIS, MISSOURI

Insto-Gas TORCHES
Make Leak-proof, Soldered-type joints quickly and economically.
Check these features:
1. Clean flame—no grease, no soot.
2. Brush flame.
3. Controlled volume—steady flame—no pumping.
4. Absolute safety.
5. Lights instantly under all conditions.
6. Handles fittings from ⅜" to 6".
Write for complete information.
INSTO-GAS CORPORATION, DETROIT, MICHIGAN
1900-2 E. Jefferson Avenue
Please rush complete information to:
Name: .....
Address: .....

NO-SOL COPPER FLOATS

QUALITY MERCHANDISE *does most to stimulate* CONSUMER CONFIDENCE

Incorporated 1907

THE AYLING & REICHERT CO.
3047 NORTH ERIE STREET TOLEDO, OHIO

PARMELEE *for* PUSH NIPPLES *modern and obsolete*

Quick Service

When you want replacement Push Nipples quickly —think of Parmelee. Orders shipped the day received. Complete stock. Push Nipples to fit any style, type or size of cast iron radiation ever made in this country. *Exact fit guaranteed.* Send sample or sketch giving accurate dimensions. Rust-resistant finish if desired. Also boiler nipples.

PARMELEE MANUFACTURING CORP.
P. O. Box 26 Frankfort, New York

UP GOES CAPACITY

No Increase In Weight

Here's news! Outside Capacity: No. 10, ¼" to ⅞"; No. 20, ½" to 1⅜"; and No. 30, ⅞" to 2¼". Rollers are frictionless! Eversharp cutter wheel. Perfect, square cuts — never a twisted, dented or marred tube. Note the reamer. See this rapid acting, low priced cutter at your jobber.

It Has Rollers!

ARMSTRONG TUBE CUTTER

A MODERN TOOL

ARMSTRONG
MANUFACTURING COMPANY
BRIDGEPORT
CONNECTICUT, U.S.A. EST. 1869

FOR MODERN PIPE

KLEEN TUBE *Cleanable*
WATER HEATERS

ADAMS ENGINEERING CO., Inc.
2607 Wentworth Avenue CHICAGO

significance of price is in relation to the value received in exchange and in relation also to the price levels in other fields and the general purchasing power of money.

"All these factors combine to give the American builder today more and better plumbing and heating for his money than has ever been obtainable before."

Fire Prevention—

(Continued from Page 79)

possibility of fire department response, greater protection can be gained from the use of a separate fire pump supplied from a 4,000 gal. storage tank. The recommendation for such a pump is that it have a capacity of at least 50 gal. per minute against 60 lb. pressure through a half-inch nozzle.

It has been shown that the contractor-dealer has a two-fold, worthwhile message for Fire Prevention Week. One of the best means of putting the message across is through the schools. One of the most effective techniques used by sponsors of special weeks is the issuance of questionnaires and home inspection blanks which pupils take home and show to their parents. One of the important phases of the home inspection as listed on these forms is the heating plant. Most home owners are not qualified to make a competent examination of this important equipment. What could be more logical then, than the offer of a qualified, authoritative inspection by the contractor-dealer and his staff during and following Fire Prevention Week? This offer can be made by letter or by telephone call to the parents of school children. A sample letter, along with a typical newspaper advertisement and a typical publicity release, accompanies this article.

Permissions to make such inspections should be obtained easily during Fire Prevention Week, and home owners should be more susceptible to suggestions than at any other time. Even aside from the fire angle, this is a good season for the householder to make repairs and install new equipment. Winter is not far off. Lack of heat, with consequences not so dramatic as from fire, nevertheless is an important possibility to consider—for a great amount of loss and inconvenience can be

HOTEL LENOX

Why Pay More—

for first class hotel accommodations, when you can enjoy the fine hospitality, convenient location, and excellent service of Hotel Lenox at these moderate

RATES

Single .....$2.50 to $3.50
Double .....$3.50 to $6.00
Family Suites $7.00 Up.
Special for 2 Rooms and Bath:
3 persons $6.00; 4 persons $7.00

Send for free AAA road map and booklet containing handy map of downtown Buffalo.

Clarence A. Miner, President
140 North St., near Delaware

BUFFALO, N.Y.

caused by frozen water pipes, a cold house or a flooded cellar. The contractor-dealer can easily include plumbing in his inspection. When entree once is gained he can, and should, make whatever suggestions are justified. Competition will be largely eliminated since the dealer is performing a valuable service to the home owner and is, in a sense, putting himself in the place of the buyer by suggesting only what he himself would do under the circumstances.

Obviously such inspections should be thorough. The contractor-dealer should ascertain if oil burners or stokers have been installed correctly and whether protective devices are in working condition. He should make sure that wood or other flammable materials close to furnaces or burner are insulated. He should investigate the possibility of a gas burner flue damper becoming wholly closed. He should make sure that there is not a stop valve in the expansion line of closed hot water heating

---

Dear Mr. ————:

This is Fire Prevention Week, the time set aside to plan ways of beating the "bad master" which last year destroyed $293,000,000 in property, took the lives of 10,000 persons and injured tens of thousands more.

Much of the property loss is in homes; most of those killed by fire die in dwelling conflagrations. And yet fully 75 per cent of these fires can be prevented. The trouble is that sometimes we as individuals—because we are busy or because we don't think about it—neglect to make sure, for the sake of ourselves and our families, that our own homes are safe.

We of the ———— Co. are determined to do our part in beating the bad master. Realizing that many fires are caused by neglected heating systems and that many home owners do not have the time or experience to make it, we offer a thorough, competent inspection of heating system to anyone asking for this service.

There's no obligation. Make sure—now.

Yours for Safety,

————.

---

systems and that they are equipped with suitable relief valves. He should suggest that it is essential that every hot water supply system have a relief valve. Any type of heating equipment in poor condition has its dangers;

QUALITY COMES SEALED IN CANS

Sealed in its AIR-TIGHT container the "DANDY" Tank Ball retains all of its factory fresh "snap." Made of the highest grade black rubber, the "DANDY" is guaranteed . . . not to swell . . . and to resist alkali. This attractive "point of purchase" display will sell them for you. See your wholesaler for your supply today.

LAVELLE RUBBER CO.
320 W. ILLINOIS ST.
CHICAGO, ILL.

You NEED this *FLUX* if You Solder . . . .

Use Rubyfluid Paste or Flux. You'll find it makes the most stubborn job easy. Assures strong, neat results, and a saving of both time and material without the dangers of fumes, odors or corrosion. Paste available in 2 oz. size and up. Flux in 3 oz. and up. Write for prices, also information about our new Stainless Steel Flux.

Free samples on request. "A test will prove it best."

RUBY CHEMICAL CO.
73 McDowell St. Columbus, Ohio

Rubyfluid

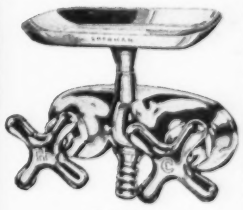


Fig. 583

"DIFFERENT" and APPEALING BATH FAUCET with Soap Dish

Sold thru Jobbers

Moderate Price
Sherman Quality

H. B. Sherman Mfg. Co.
Battle Creek, Mich. U. S. A.

Converts Furnace into Blowtorch in just 5 Seconds

Just Five Seconds! That's all it takes to convert the UNIQUE "Combination" from a furnace into a heavy duty blowtorch. Loosen three wing nuts, remove top structure, slip on extra handle, and in a flash you have a torch ideally suited to melt lead from soil pipe, for preheating and thawing. Can be used in ANY position. When used as a furnace it melts 20 lbs. solder in 7 min.; 40 lbs. in 10 min. Its finely controlled flame, 2 to 10 in. long, operates 4 to 6 hours on ONE gal. gasoline. Seamless steel generator encased in heat resisting casting. All parts easily cleaned and replaced. No special tools required. Heavy steel tank. Bottom is welded, fitted with shock ring. Fittings are brazed. No soft solder used. Funnel filler fitted with dust cap. *Write for further details today.*

UNIQUE MFG. CO., Inc.
Established 1921
221 W. WALTON STREET
CHICAGO, ILLINOIS, U. S. A.

SpeedWay Electric HAMMERS

Saves More Than Any Other Tool GUARANTEES Your Profit

Through stone, concrete, plaster, brick — nothing stands in the way of a SpeedWay Electric Hammer. 1,800 powerful blows per minute. Takes drills to 1¼" diameter. Handy—weight 26 lb. Built for 20-year service. It's a money-maker—makes 1 man equal to 10. Always the standard—there are more SpeedWays in use than any others.

No. 6 Electric Hammer

More Tool for the Money

WRITE FOR CATALOG

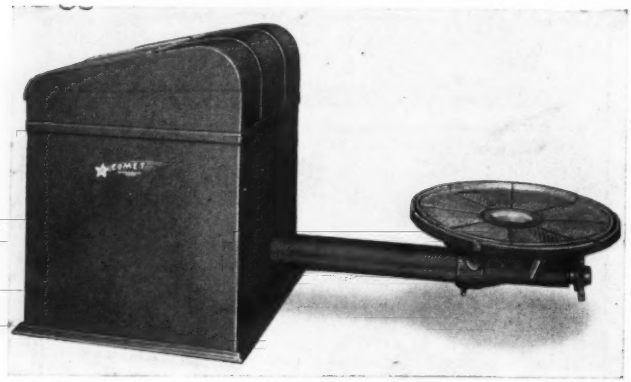
SpeedWay Manufacturing Co.
1863 So. 52nd Ave., Cicero, Ill.

The ★COMET STOKER

Is Lighting The Path to Sales and Profits. Is Attracting the Attention of Entire Stoker Industry.

The COMET Has

● No More Fly ash Than Hand Fired Plants. ● No Interrupted Heat Service Due to Mechanical Failures. ● No Interrupted Heat Service Due to Electric Power Failures. ● No Grates to Shake or Drafts to Manually Operate. ● No Dead Spot or Blow Holes as Grates Revolve, Evenly Distributing Fuel. ● No Clinkers from Any Fuel Used. ● No Blower-Low Stack Temperatures.



Patents Applied For

(Each 25 degrees in flue temperature represents one per cent fuel saving—200 degrees reduction represents eight per cent fuel saving.)
Watch Other Natural Draft Stokers Appear on the Market—But, Remember the COMET is the Original. Watch the COMET. DEALERS: Order your Floor Sample—Now—Be the Exclusive COMET DEALER in your Territory.

COMET ELECTRIC CO., 1245 ST. PAUL ST., INDIANAPOLIS, IND.

Manufacturers of Electric Equipment for 37 years

THE HOTEL of THE MONTH

Owensboro Hotel OWENSBORO KENTUCKY

ALBERT PICK HOTELS

You'll get more for your money at Pick Hotels. Spacious, comfortable rooms. Delicious food and real personal service. All at moderate prices.

CHICAGO, ILL.	GREAT NORTHERN HOTEL
DETROIT, MICHIGAN	TULLER HOTEL
DAYTON, OHIO	MIAMI HOTEL
COLUMBUS, OHIO	CHITTENDEN HOTEL
COLUMBUS, OHIO	FORT HAYES HOTEL
TOLEDO, OHIO	FORT MEIGS HOTEL
CINCINNATI, OHIO	FOUNTAIN SQUARE HOTEL
CANTON, OHIO	BELDEN HOTEL
SOUTH BEND, INDIANA	OLIVER HOTEL
INDIANAPOLIS, INDIANA	ANTLERS HOTEL
ANDERSON, INDIANA	ANDERSON HOTEL
TERRE HAUTE, INDIANA	TERRE HAUTE HOUSE
ASHLAND, KENTUCKY	VENTURA HOTEL
OWENSBORO, KENTUCKY	OWENSBORO HOTEL
JACKSON, TENNESSEE	NEW SOUTHERN HOTEL
ST. LOUIS, MO.	MARK TWAIN HOTEL
WACO, TEXAS	RALEIGH HOTEL

PICK HOTELS

WHENEVER YOU SEE THE WORD PICK THINK OF ALBERT PICK HOTELS

Calling attention to the fact that dwelling fires cause an annual loss of $100,000,000 and 10,000 lives, ———— of ———— St. today declared that most fires in homes can be prevented. His views were expressed on the occasion of Fire Prevention Week, proclaimed by the President for Oct. 3 to 9.

"When each of us stops thinking of fires as disasters that happen only to the 'other fellow' and his family," said Mr. ————, "and sees to it that his own home is safe, we will soon put a stop to this tremendous destruction of life and property.

"The first thing to do is to make a thorough clean-up of fire breeding rubbish and paper. The next thing is to arrange for a competent, authoritative inspection of the heating system by a qualified expert. A large percentage of home fires are caused by defective heating systems and, in addition, fires starting in the cellar or basement tend to spread more rapidly than fires in any other part of the house."

all types are safe when they have the proper controls and are properly kept. The more complete the inspection the greater the service to the home owner and the better the selling job the salesman can do when he is completely armed with facts of pertinent and timely value to his customer.

Business flowing from civic service represents the highest type of creative selling. Right now is the time to go after it.

Chicago Standards—

(Continued from Page 88)

ous parts of the refrigerating apparatus to be used in cooling.

(a) Assumed condenser cooling water temperatures 75 deg. Fahr. for city water and 86 deg. Fahr. for cooling towers and evaporative condensers.

(b) When the refrigerant is flammable, irritant or toxic, a receiver of sufficient capacity to contain the entire operating charge of refrigerant shall be provided. Under such conditions adequate valves and facilities shall be provided for storing all of the refrigerant within the receiver.

(c) The rating for purposes of selecting protective devices of a refrigerating apparatus employed in cooling and air conditioning shall be based on an evaporating temperature of 40 deg. Fahr.

(d) Apparatus such as evaporators, condensing units, expansion valves, etc., shall be installed with sufficient line valves and with proper fittings to permit efficient servicing or quick replacement of operating parts without exposing the interior of the refrigerant-containing parts to air and moisture where such exposure would affect the system adversely.

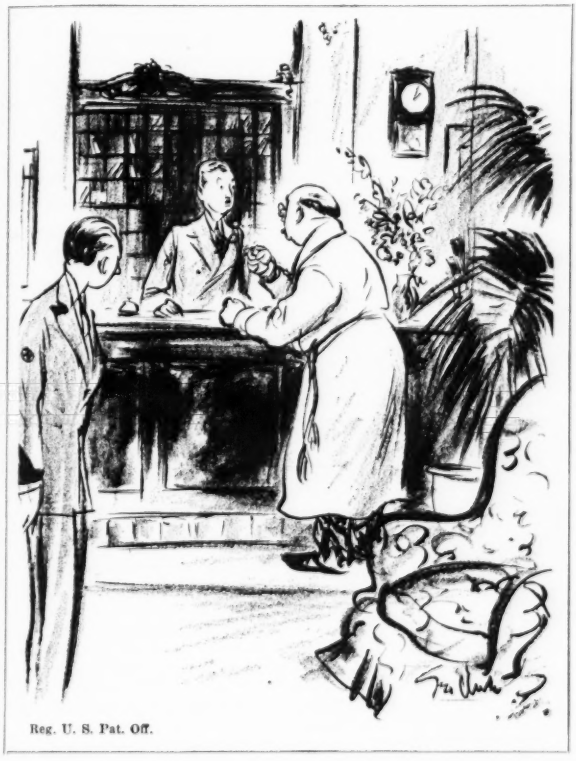
(e) Accessibility for servicing and repairing of all parts of the air conditioning system must be provided.

19. HEAT TANSFER APPARATUS—(a) All convectors where condensation might occur when cooling shall have drain pans with tubing running to a drip with air break above a trapped sewer connection or its equivalent.

(b) No fixed spray humidifier or spray dehumidifier shall be installed above the basement of a building unless there

shall have been installed under it a water-tight safeing graded to a drain so that in case of leakage or overflow there shall be no danger of water damage to the rooms under the apparatus.

20. **CONTROL DESIGN**—Control design shall be such as to make possible the maintenance of temperatures, humidities and air volumes within the limits specified for each air conditioning system. Specifications contemplating no such controls should so specifically state.



Reg. U. S. Pat. Off.

"I said I wanted a room where I could hear the roar of the ocean—not the drip of a faucet."

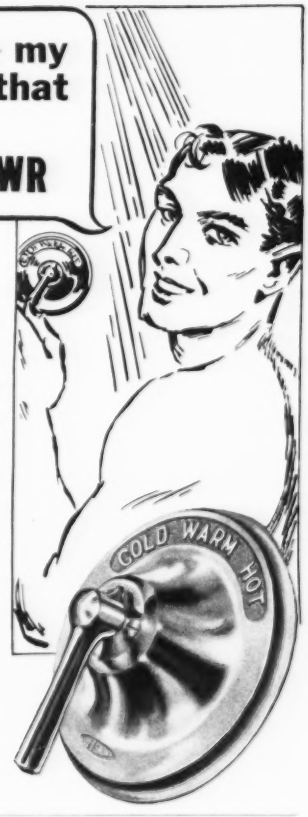
21. **NOISE CONTROL**—No noise resulting from the operation of an air conditioning system shall exceed the loudness level of the noise in the room when the normal activities in the occupied space are in progress and no part of the air conditioning system shall be expressed in decibles of both the noise in the room and the noise produced by the air conditioning system shall be expressed in decibels and measured with a sound level meter constructed according to American Tentative Standards for Sound Level Meters Z24.3-1936. Noise measurements shall be made at a height of 5 ft. from the floor of the space to be air conditioned and no reading shall be taken closer than five feet from any wall, register face, window or ventilation equipment.

22. **INSULATION**—In air conditioning work in which refrigeration is employed, all chilled surfaces exposed to temperatures and humidities which cause deposition of dew shall be insulated to such an extent at least that no condensation shall gather outside of the insulation.

23. **GUARANTEES**—Guarantees of performance when required shall be limited to capacities or conditions that are described and can be measured accurately and the guarantees shall state the condition under which such capacities or results are to obtain.

24. **EXCEPTIONS**—If a proposed installation differs from the provisions of this code, the particular in which the design departs from the code shall be stated in the specifications and proposals.

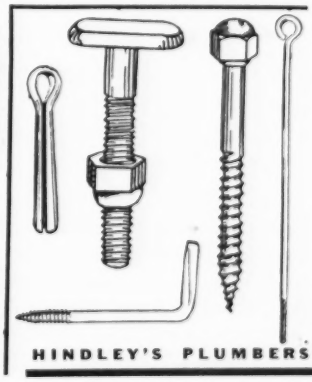
I sure thank my plumber for that tip on . . .
SAFE-T-SHOWR



• Every customer will thank *you* for the new joy of showering with thermostatic temperature control. No sudden blasts of hot or cold water—all danger of scalding absolutely eliminated by the Doran Safe-T-Showr. Real profits await the alert dealer who pushes the Doran valve for any installation where hot and cold water are to be mixed. Ask your jobber today!

SAFE-T-SHOWR
DORAN COMPANY
SEATTLE, WASH.

YOU'RE NOT PREPARED . . . FOR THE JOB . . .



if you don't carry a complete supply of HINDLEY'S Plumbers' Specialties in your kit. Save yourself grief. Keep them where you need them. You won't have to fumble or resort to makeshift.

HINDLEY MFG. CO.
VALLEY FALLS, R. I.
HINDLEY'S PLUMBERS' SPECIALTIES

NEW MIDGET-FLAME TORCH
For Copper Tubing Work

C&L

No. 99
PINT SIZE
For Close Quarters

CLAYTON & LAMBERT MFG. CO.—DETROIT

AN

Integral Part

OF

THE NEW YORK THAT MATTERS

In the very midst of important New York and with direct connection to Grand Central, The Biltmore offers the luxurious comfort, distinctive atmosphere, and deft, flawless service of a fine, well-ordered home.

WORLD-FAMOUS DINING ROOMS

THE BILTMORE

David B. Mulligan, *President*

Madison Ave. at 43rd St., N. Y.

Adjoining Grand Central

The Rate You Pick is the Rate You Pay...

When you enter Hotel Sherman you give the orders. Any day or night, whatever price room you wish you may be sure will be assigned to you cheerfully – a sizeable, comfortable room and your own private bath. The entire staff has only one purpose ... pleasing you !!!

HOTEL SHERMAN

1700 ROOMS

1700 BATHS

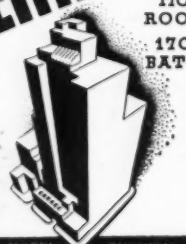
HOME OF THE

COLLEGE INN

FRANKIE MASTERS His Radio Orchestra

JACKIE HELLER – Popular N.B.C. Singing Star

CHICAGO



YOU CAN DRIVE YOUR CAR RIGHT INTO HOTEL SHERMAN

CLASSIFIED AD

SITUATIONS OPEN

SALESMAN

UNUSUAL OPPORTUNITY FOR A MAN WHO IS WELL ESTABLISHED IN NORTHERN NEW JERSEY. HE WILL HAVE EXCLUSIVE TERRITORY, COMMISSION BASIS, REPRESENTING PROMINENT MANUFACTURER'S AGENT ON SIX WELL KNOWN PROFITABLE LINES SOLD ONLY TO PLUMBING SUPPLY JOBBERS. MUST BE CAPABLE OF HANDLING PROMOTIONAL WORK. ADDRESS KEY 432-D, "DOMESTIC ENGINEERING," 1900 PRAIRIE AVENUE, CHICAGO, ILLINOIS.

SALESMEN WANTED TO SELL TUBULar brass goods to plumbing supply jobbers. Several choice territories open. Straight commission. Reply; state age, territory covered, lines handled, references. Address Key 434-D, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

SITUATIONS WANTED

FOREMAN-ESTIMATOR, TOP MAN, plumbing-heating kindred lines, technical graduate, experienced executive, desires change. Available December first. Address Key 433-D, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

SALES MANAGER

With New England experience in distributing heating boilers and heating specialties and air conditioning apparatus—open for new lines on commission. Confidential correspondence solicited. Address Key 412-D, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

POSITION WANTED—SALESMAN EXperienced in the sale of tools and plumbing specialties. Thorough understanding of plumbing from practical experience. Address Key 415-D, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

REPRESENTATIVES WANTED

MANUFACTURERS' REPRESENTAtive familiar with ventilation and capable of doing a sales and engineering job with established line of Dual-Air Power Fans. Address Key 264-D, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

FIELD REPRESENTATIVE FOR AN approved anthracite stoker. Developing eastern territory. Drawing account and commission. State experience and references. Address Key 413-D, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

LINES WANTED

Manufacturers Representative

Established 1931—successfully serving and counselling with an exclusive clientele, could add a worthy line. Thus confidential correspondence with manufacturer desiring qualified representation to the wholesaler is invited. Prior background; Branch Manager and later an Executive of a National Manufacturer of the Industry, voluntarily resigning from latter position and establishing own representative business. Territory embraces New York State (excepting Metropolitan N. Y. C. area) and Erie, Penn. Address Key 428-D, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

VERTISING

RATES FOR CLASSIFIED ADVERTISEMENTS

Eight cents per word, including heading and address. For keyed address count seven words. Minimum advertisement, $2.00 per insertion. Cash must accompany order. For rates on bold face advertisements in this section write to Classified Advertising Department, DOMESTIC ENGINEERING, 1900 Prairie Avenue, Chicago, Illinois.

PLUMBING, HEATING AND AIR CONditioning lines wanted for Oklahoma territory. Well acquainted with contractors and architects. Fifteen years experience in jobbing field. Address Key 431-D, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

Manufacturers' Representative

The New York Metropolitan territory is the biggest market in the world! Are you interested in coming into that market? Expert representation is absolutely essential. I have had fifteen years of successful selling experience in that field, calling on the plumbing and heating wholesale trade in New York and New Jersey. I am interested in securing an additional major line. All communications held strictly confidential. Address Key 429-D, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

A MAN WITH SIXTEEN YEARS EXperience in selling the wholesale trade is interested in obtaining several specialties in the Ohio and Michigan territory. Address Key 435-D, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

REPRESENTATIVE WITH TWO salesmen in metropolitan district, New York, would like additional lines selling jobber only. Address Key 430-D, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

LINES WANTED—MANUFACTURERS' representative for Chicago territory desires factory connections for enameled ware, pottery and brass lines. Centrally located warehouse facilities. Address Key 424-D, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

LINES TO HANDLE

A Bargain in Air Conditioning and Ventilating Equipment

14 IIg Unit Heaters, IIg Universal Blower 4.85 H.P. Exhaust Fans, etc. Priced for quick sale. The Geo. Worthington Co., 802 St. Clair N. W., Cleveland, Ohio.

WANTED TO BUY

WANTED: ALL SIZE DIES FOR Saunders pipe machines 2½" to 12". Address Key 417-D, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

FOR SALE

FOR SALE—ONE 4 S 9 AMERICAN Red Flash boiler 3500 E. D. R. new trim and 5" header with Hartford Loop, $250.00. ROBERT C. HEIDEN, Monroe, Wisconsin.

FOR SALE—ESTABLISHED AND profitable plumbing supply and specialty business in middle west. Address Key 414-D, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

BOOKS

ALT'S HOUSE HEATING PLANS—BY Harold L. Alt. Will give the heating contractor the very latest information for use in designing and installing heating systems for bungalows, residences, garages and combination store and apartment buildings. All of the smaller type of structures. It includes design for all of the various boiler and radiator systems, data on accessories and gives full and complete layouts. Progress within recent years in the design and manufacture of heating equipment has been so great that small structural heating system installations present entirely new and different problems. These are solved in this book. 208 pages, 5½x8½, bound in cloth, price postpaid $1.00.

101 PLUMBING AND HEATING TABLES. The book contains as complete a set of working tables as has ever been published. It answers quickly and accurately, practically every kind of plumbing and heating question which could possibly be answered by a table, rule or chart. Is well indexed. Has 48 pages. Size 8x11, bound in cloth. Price postpaid $1.00.

OIL BURNER HEATING — DISCUSSES oil burner heating problems from the sale of the job to the operating installation. Every chapter in the book is built upon direct questions asked by heating men. Testing problems worked out show what should be done to test efficiency of installation, how to compare cost of oil or gas heating, how to find heat losses, how combustion chambers are built, what to do when changing from gas installation to oil burner, how to figure oil consumption for year, etc. Can be used on practically any oil burner installation, and much of the information it contains applies also to gas burning boilers and to stokers. 184 pages, 5½x8¼, bound in cloth, price postpaid $1.00.

AIR CONDITIONING SIMPLIFIED—A book which gives a step by step story of air conditioning, what it is, how it works, what it does, how to install it, how it is sold. The book is written in three complete parts from the pens of the leading authorities in the industry and edited by Harold L. Alt, heating engineer. The first part is on theory, the second part on the application of the theory and the third part on getting air conditioning business. 216 pages, 5½x8¼, bound in cloth —price postpaid $1.00.

Books Sent Parcel Post Prepaid

DOMESTIC ENGINEERING CO.
1900 PRAIRIE AVENUE, CHICAGO

MISCELLANEOUS

PLUMBER'S BIN LABELS

Send for free samples and prices for plumbers' bin labels, Metal Card Holders, Celluloid Card Protectors and Blank Cards. Haddon Bin Label Co., Haddon Heights, N. J.

PIPE COUPLINGS

We can turn your old surplus pipe couplings into CASH or, if you need pipe couplings we can supply you from stock AT A SAVING. Write

Russell F. Kleinman
5315-17 No. 2nd St., Philadelphia, Pa.

JOB TICKETS, TIME SHEETS

Contract Blanks, Estimate Sheets, Letter Heads, Social Security Pay Envelopes and other printed forms for plumbers our specialty. Reasonable prices and prompt attention to inquiries and orders. Write for samples.

LOUIS FINK & SONS CO.
Trades Building, Laurel Springs, N. J.

ARREST YOUR ATTENTION

To qualify for more and bigger Heating jobs in 1938.

Give an Engineered Job to your Customer. We have a special Training Service for Employers, their sons, Mechanics, Apprentices, etc. Each Student is trained in as personal way as possible in Laying Out, Plan Reading, Figuring, Designing Jobs, Estimating and Supervision of the work. This is your key to open the door of opportunity.

Information is free, no obligations, check your Course, and write today.

- ☐ Heating, Ventilating Engineering
- ☐ Steam and Hot Water Heating
- ☐ Air Conditioning & Refrigeration
- ☐ Forced Warm Air Heating
- ☐ Plumbing and Sanitary Engineering
- ☐ Estimating and Contracting

ST. LOUIS TECHNICAL INSTITUTE
4541 Clayton Ave. St. Louis, Mo.

USE THIS PAGE TO GET WHAT YOU want. If you are looking for competent employes; or if you contemplate a change in position, have a patent for sale; wish to purchase or sell a plumbing and heating business; second-hand machinery or tools; form a co-partnership, etc., your advertisement on this page will put you in touch with the people you desire to reach. The cost of insertion is only eight cents a word and may mean many dollars to you. Address all classified advertisements to The Classified Advertising Department, "Domestic Engineering," 1900 Prairie Ave., Chicago, Illinois.

Index to ADVERTISERS

Adams Engineering Co., Inc..... 174
Air Conditioning Blue Book..... 30
Alberene Stone Corp. of Virginia.. 150
American Brass Co..... 10
American Gas Association..... 111
American Radiator Co.....33 and 40
Anderson Products, Incorporated.. 51
Anthracite Industries, Inc..... 21
Armstrong Bros. Tool Co..... 137
Armstrong Manufacturing Company 174
Automatic Gas Steam Radiator Co. 164
Ayling & Reichert Co..... 174

Barber Gas Burner Co., The..... 44
Barnes & Jones, Inc..... 166
Bead Chain Manufacturing Co., The 160
Beaton & Cadwell Mfg. Co., The... 146
Bell & Gossett Co..... 38
Benson Co., Inc., Alex. R..... 172
Bethlehem Foundry & Machine Co. 24
Bethlehem Steel Company..... 182
Bridgeport Brass Company.115 and 116
Briggs Manufacturing Co..... 12
Burnham Boiler Corp..... 41

Carey Company, The Philip..... 167
Chase Brass & Copper Co., Inc.... 62
Chicago Faucet Co..... 5
Clayton & Lambert Mfg. Co..... 177
Clifford Mfg. Co..... 167
Comet Electric Co..... 176
Commercial Credit Company..... 28
Consolidated Brass Co..... 161
Crane Co.....26 and 27
Cudahy Packing Co..... 163

Decatur Pump Co..... 149
Deming Company, The..... 173
Detroit Lubricator Co.....53 and 60
Dole Valve Company, The..... 45
Doran Company 177
Duriron Company, Inc., The..... 153

Eagle-Picher Lead Co.....157 and 166
Elkay Mfg. Co..... 168

Fedders Manufacturing Co..... 162
Fitzgibbons Boiler Co., Inc..... 57
Fretz-Moon Tube Co..... 139

Gardner-Denver Co..... 155
General Electric Co..... 6
Gerstein & Cooper Co..... 171
Gilbert & Barker Manufacturing Co. 50
Goulds Pumps, Inc..... 17
Grabler Manufacturing Company, The 133
Grinnell Co., Inc....Inside Back Cover

Hays Mfg. Co..... 164
Hindley Mfg. Co..... 177
Hoffman Specialty Co..... 11
Hotel Biltmore 178
Hotel Lenox 174
Hotel Owensboro 176
Hotel Sherman 178

Imperial Brass Mfg. Co..... 48
Insto-Gas Corporation 173
International Nickel Co., Inc., The 159

Jarecki Mfg. Co..... 148
Johns-Manville, Inc. 47

Kainer & Co..... 147
Keasbey & Mattison Co..... 107
Kennedy Valve Mfg. Co..... 157
Kohler Co.....49 and 152
Kol-Master Corporation 161
Kuhns Brothers Co..... 154
Kupferle Foundry Co., John C.... 150

Lavelle Rubber Co..... 175
Leland Electric Co., The..... 156
Leonard-Rooke Company, Inc..... 169
Linde Air Products Co., The.20 and 61
Little Mfg. Co., The M. S..... 151

Malleable Iron Fittings Co..... 154
Marsh Corp., Jas. P..... 14
McDonnell & Miller.....Back Cover
Milwaukee Valve Co..... 141
Minneapolis - Honeywell Regulator Co. 32
Modine Manufacturing Company.. .....55 and 56
Mueller Brass Co..... 19
Myers & Bro. Co., F. E..... 143

Nash Engineering Co..... 52
National Metal Products Corp..... 165
National Radiator Corporation.... 39
National Tube Company..... 16
Northern Indiana Brass Co..... 23
Nye Tool & Machine Works..... 154

Paine Company, The..... 22
Parmelee Manufacturing Corp..... 174
Penberthy Injector Co..... 65
Pennsylvania Range Boiler Co.... 168
Phillips Corporation 165
Pittsburgh Tube Co..... 110

Radiator Specialty Co..... 172
Refrigeration & Air Conditioning Institute 31
Reichert Float & Mfg. Co..... 172
Reif-Rexoil, Inc. 29
Revere Copper & Brass, Inc..... 54
Ridge Tool Co., The..... 144
Ruby Chemical Co..... 175
Russell & Co., W. A..... 46

Sarco Company, Inc..... 169
Scott-Newcomb, Inc 173
Scully Steel Products Co..... 59
Sherman Mfg. Co., H. B..... 175
Sherwood Brass Works..... 173
Silent Glow Oil Burner Corp..... .....102 and 103
Slater Manufacturing Co..... 36
Sloan Valve Co..... 63
Smooth-On Mfg. Co..... 158
Speakman Company.....42 and 43
SpeedWay Manufacturing Co..... 175
Standard Sanitary Mfg. Co..... 58
Streamline Pipe & Fittings Co., Division Mueller Brass Co..... 19
Sturtevant Co., B. F..... 25
Sulflo Corporation of America..... 173

Taco Heaters, Inc..... 7
Thompson & Son Co., The Henry G. 170
Thrush & Co., H. A..Inside Front Cover
Toledo Pipe Threading Machine Co., The 66
Trane Company, The.....8 and 9
Trimont Mfg. Co., Inc..... 34
Trupar Incorporated 158

Uniflow Mfg. Co..... 145
Union Carbide and Carbon Corp.... .....20 and 61
Unique Mfg. Co., Inc..... 175
United States Radiator Corporation 15
United States Sanitary Mfg. Co.... 142
United States Steel Corp....16 and 59
National Tube Co..... 16
Scully Steel Products Co..... 59
Export Distributors: United States Steel Products Co. 16
Pacific Coast Distributors: Columbia Steel Co..... 16

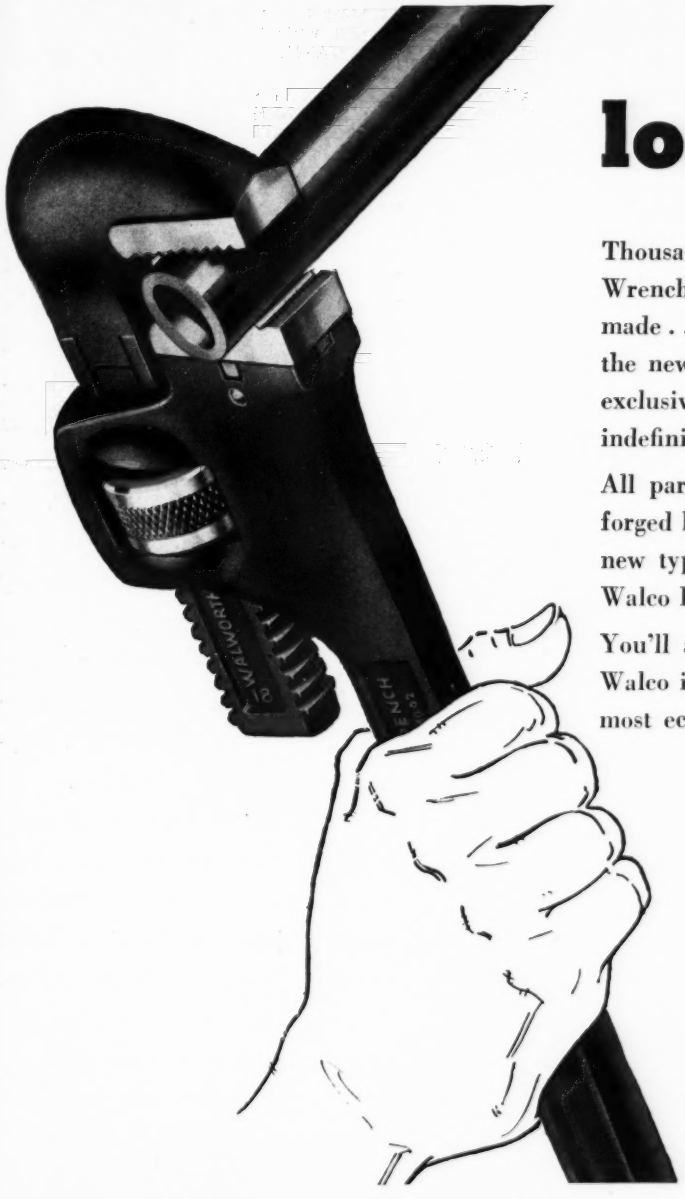
Vogel Co., Jos. A..... 3

Walworth Company 181
Warnock Mfg. Co..... 172
Waterfilm Boilers, Inc..... 140
Watts Regulator Co..... 37
Wayne Oil Burner Corp..... 18
Webster & Co., Warren..... 162
Wheeling Steel Corporation..... 13
Whitehead Metal Products Co. of New York, Inc..... 159
Worcester Brush & Scraper Co..... 171
Wyckoff & Son Co., A..... 172

"X" Laboratories, Inc..... 127

Zurn Manufacturing Company, J. A. 35

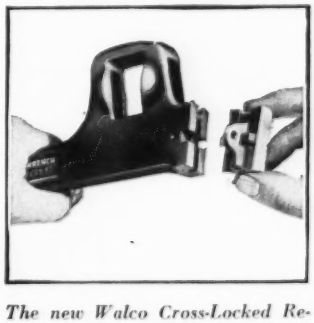
Built for Tough Jobs ..the WALCO *never* loses its grip



Thousands of users now swear by the Walco Pipe Wrench. They know it's the strongest pipe wrench made . . . that it will stand severe abuse. They like the new cross-locked, renewable lower jaw. This exclusive Walco feature makes it easy to prolong indefinitely the life of the wrench.

All parts are of drop-forged steel, with integral forged housings—and all parts are heat-treated. A new type of spring makes it easy to adjust the Walco Pipe Wrench.

You'll agree with thousands of users: The new Walco is the safest and strongest—and by far the most economical—Pipe Wrench to use.



The new Walco Cross-Locked Renewable Lower Jaw can be replaced in a few moments. No special tools are required.

WALWORTH

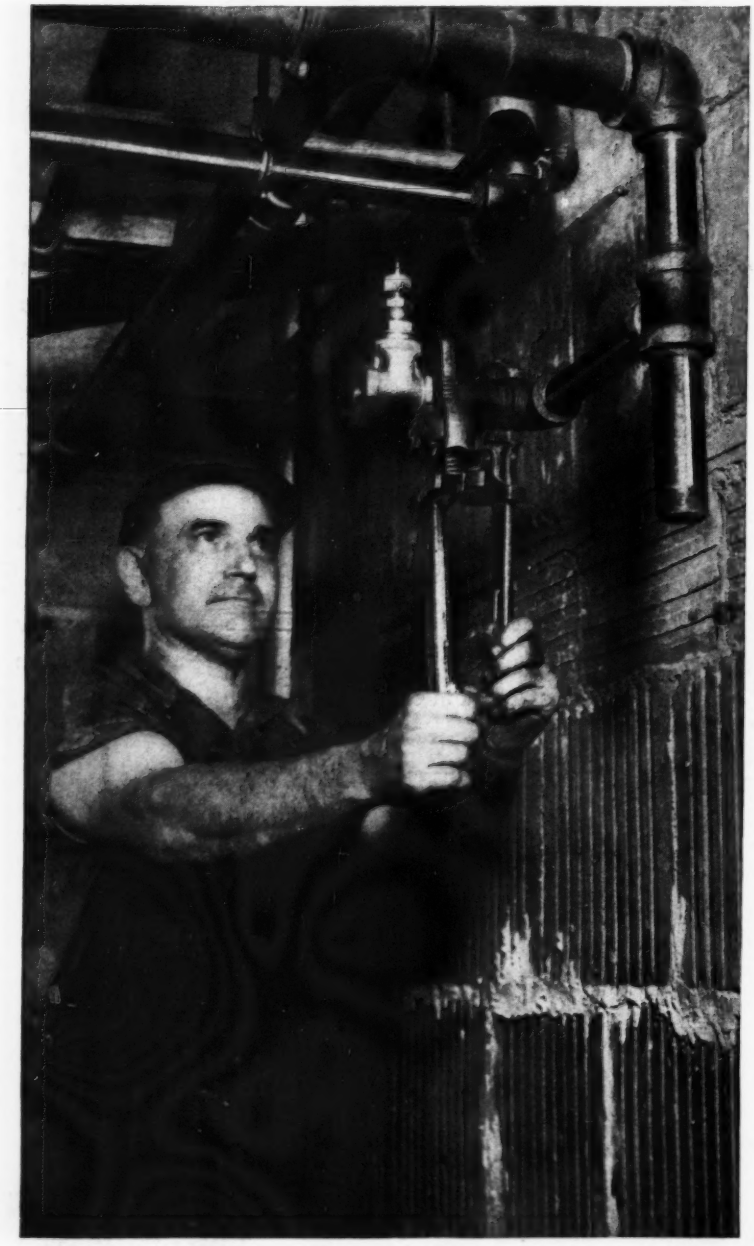
VALVES FITTINGS and TOOLS
Backed by 95 Years' Service

WALWORTH COMPANY
60 EAST 42nd STREET, NEW YORK

DISTRIBUTORS IN PRINCIPAL CITIES THROUGHOUT THE WORLD

BETH-CU-LOY PIPE

200 to 300 per cent the resistance to rust



at only 3 to 5 per cent greater cost

You can confidently recommend Beth-Cu-Loy Pipe to customers who want the best. It is made of copper-bearing steel—steel alloyed with the small but exactly correct amount of copper for maximum resistance to rust. Various tests, including the well-known A. S. T. M. atmospheric-corrosion tests, have definitely established that copper-bearing steel of this analysis is the outstanding material among commercial irons and steels for defying atmospheric corrosion.

Beth-Cu-Loy costs very little more than ordinary pipe—3 to 5 per cent. This is actually less than most "premium" grades. Yet it is rust-resistant to a high degree. Recommend it to customers who want maximum service life.

BETHLEHEM STEEL

BETHLEHEM STEEL COMPANY